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SOVIET MILITARY EDUCATION-- A Source of Communist Power

Colonel Virgil Ney, *Army of the United States, Retired*

THE collapse of the Imperial Russian Army in 1917 and the subsequent deliberately planned destruction of its officer corps by the Bolsheviks left the Soviets facing a most serious dilemma. With the traditional, normal pattern of military leadership torn to shreds by design, violence and murder, the architects of the Red Army had to turn to the ex-Imperialist officers and impress them into service in order to bring some semblance of order out of chaos. That these unfortunate professional soldiers had to exist by earning their bread in the service of their overthrowers was degrading enough, but in addition, they were not trusted and were at the mercy of the militarily inept commissars who were expressly appointed to watch their every move.

Obviously, such a military system would not function for long. Initially, the early Red Army struggled along in an *ad hoc* manner, with little or no attempt to establish an acceptable program of education for its officers and cadets. At this point, mention should be made of the fact that the nations of the West were aware of the self-imposed Russian problem, the creation of a "classless" army, and the development of an entirely new and dedicated officer corps. That this situation, the absolute reversal of the Western concept of the military profession, could ever

come to pass was seriously doubted by students of military history and the art of war.

In 1932 John Baker White, in his volume, *Red Russia Arms*, had many trenchant comments to make upon his observation of the fledgling Soviet Army. Today, his comments are especially valuable to show the distance the Soviets have come since 1932 and two wars.

So when Trotsky began his immense task of creating a Red Army he was faced with the difficulty of finding officers. He had at his disposal a comparatively small number of ex-Tsarist officers who had left the service of the double-eagle for that of the red-star, and if the men did not trust them, Trotsky very wisely did. He also had a considerable number of ex-non-commissioned officers and privates who had been promoted to Officer's rank during the Polish and 'White Intervention' campaigns. Many of these 'heroes' of the Revolution were a nuisance to him, for most of them had little real military knowledge and not a few of them were illiterate. Trotsky was also surrounded by a host of minor political commissars wanting positions in the army, who only obstructed him in his duties. Yet in spite of these difficulties he succeeded in creating an efficient nucleus to form the foundation of the officers' cadres of today.

The Soviet military educational system is designed not only to produce a well-trained, professionally competent officer corps, but one that is thoroughly indoctrinated in Communist political dogma as well

Reorganization Problem

The reorganization problem faced by the Soviets was complex to a marked degree. Primarily, as far as it affected the army, the Marxist doctrine was to eliminate any and all vestiges of the "officer class"—yet, practically and historically, the Soviet planners knew that an army cannot exist nor function without officers. How to set up a "classless" class within a so-called "classless" society was a challenge to all the slowly emerging Soviet concepts of military procedure and practice. As is indicated in the quotation from White, having none qualified professionally but the former Imperial officers, the Soviet offered or forced employment upon them as military advisors. It was at this point that the Soviets began to realize that the officer profession was more than it appeared to be. Education and training could not be substituted for by the appointment of crude, illiterate factory workers to command positions where sound military decisions must be made. In order to indicate the enormity of the problem of securing officers for the Soviet Army, in its first inception, the following extract from White will suffice; but in addition, it will show the early understanding and

appreciation of political indoctrination above and beyond formal military education.

The cadets who are to become Red Army officers spend from three to four years in the military schools, and their general standard of knowledge is so low that the syllabus includes educational as well as military questions (1932). Not infrequently potential officers, fresh from the factory bench, have to be taught to read and write! It is quite impossible to draw any comparison between the Red Army officer training schemes and those in use at Woolwich, St. Cyr or West Point or Sandhurst, and in one thing only is the 'proletarian' cadet superior to his 'Capitalist' fellow. That is in his knowledge of Marx and Lenin doctrines. While the cadets at Sandhurst study the history of the Napoleonic wars, those in the Red schools study the history of the October Revolution. The theory of civil war and practical instruction in street fighting are part of their course. There are (1932) seven military academies in Russia, and over 150 schools. Of the latter, twelve are what may be best described as senior officers' schools, seven are cavalry schools and five are schools for the instruction in the problems of mechanization. But in none of them is Communist Politics ever forgotten.

In view of the current Free World alarm over the alleged "progress" of Soviet education of all categories, it is well to remember that the Red Army was the initial point from whence it all began. Realizing full well that the "hated educated class of aristocrats" before 1917, formed the officer corps of the Imperial Russian Army, the Soviets were faced with the major task of educating the workers and peasants to a comparable minimum level suitable for basic military functioning. Here, of course, the philosophy of Marx collided head-on with the military profession which, at the officer level, had al-

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ways been composed of the intelligentsia and aristocrats.

Two Solutions

By destroying these two bases, the Soviets were faced with two solutions to one problem. One quick, but hapless answer was to abolish all the outward signs of an officer class, trusting upon the emergence of "natural born" leaders who would rise to the top without the benefits of a formal military education. This idea survived for a few short years, at least until the end of the Civil War. As previously indicated, the former Imperial officers who were hired or forced into employment as military advisors were to a great extent responsible for any of the success that these "homespun" proletarian officers achieved. Contrary to all military experience and tradition, the devastating role of the Political Commissar continued to violate the principle of unity of command, as he checked upon the "political purity" of every command, order, and training directive from the point of view of the party.

A slow, deliberate solution to the problem of an illiterate officer corps was contained in a plan of education suggested in 1924 by Trotsky's successor, as Commissar for the Army and Navy, Mikhail Frunze. Frunze, who may be termed "the father of Soviet military education," realized that a modern military organization must have educated and trained leaders at all levels of command. To this end he caused to be set up a most comprehensive system of military academies, branch and arm schools, and higher staff academies. General Augustin Guillaume of the French Army, in his important work, *Soviet Arms and Soviet Power*, has the following comment to make upon the Soviet military educational system:

The large number of military schools and academies and the length of the studies required appear to be most char-

acteristic features of officer training in the Red Army. It has been claimed without too much exaggeration that the officers passed half their careers in schools.

... Numerous military schools prepare candidates for the entrance examinations to student officer schools of the different arms and services. These include the preparatory schools, called 'Suvorov Schools,' reserved for soldiers' sons and war orphans. The general education given in these preparatory schools is like that of civilian secondary schools. The elements of military instruction vary according to the schools for which the students are preparing.

... Higher military instruction is offered at a number of academies. Two of these are interservice general staff schools. The others are actually 'Schools of improvement' special to each arm or service.

The Frunze Academy trains general staff officers and may be compared to the French Ecole de Guerre. The Voroshilov Academy offers two courses of study: one, of ten months for senior and general officers; and another of three years for junior and senior officers.

... In the USSR the military sciences are considered a field of study in the same way as philosophy and mathematics. Therefore the military academies come under both the Ministry of Armed Forces and the Ministry of Higher Education.

Suvorov Academy

At the very base of the Soviet officer military educational system is the Suvorov Academy. In a most applicable parallel to the ancient Spartan scheme of removing the boy from the influence of the home and placing him in the military barracks at the tender age of seven, the Suvorov Academy accepts him at the age of eight or nine years. Many of these young cadets are the orphans of Red Army officers who have been killed in action, hence they are in a sense wards of the state to do with as it will. Could any ideology ask for

more? To have the mind and body of a child from seven to nine years of age to mold as desired would more than satisfy the requirements of any educational system. Indoctrination in the tenets of communism and continuous, thorough ideological training produces the type of officer desired; consecrated, dedicated, and educated in the rudiments of his profession. After seven to nine years as *Suvorov* cadets, these youngsters are sent on to an officers' training school for three additional years before being commissioned as lieutenants.

This *Suvorov* training system was introduced in 1943, and today, there is ample evidence to believe that the system has now come to fruition. As Raymond L. Garthoff states in *Soviet Military Doctrine*:

Soviet officers, like the soldiers, are subjected to many hours of political instruction in which for example it is explained that despite the seemingly friendly gestures of some Americans, the real masters are intent on deceiving the Soviets by lulling them into lack of vigilance and then striking. The fact that this is not true is not readily demonstrable to young officers who never knew any regime except their present one, and most of whom never saw an American or an American newspaper. This political instruction is part of the attempt to prepare them for the 'future war' with the west.

In this quotation may be found the result of the lifelong indoctrination of the Soviet officer from the tender age of eight in the fields of Marxism, Leninism, and the other refinements of the ideology of dialectical, historical materialism. Add to all this the condition of *xenophobia*, and the intellectual climate is perfectly formed for the purposes of totalitarian power.

The program of studies of the *Suvorov* Academies resembles that of the former Czarist Imperial Cadet Schools. The cadets receive an above-average secondary educa-

tion, including instruction in the following: *Russian language and literature, mathematics, history, geography, the natural sciences, the Soviet Constitution, one or two foreign languages, art, singing, instrumental music, horsemanship, dancing, and physical education.* Additional training is conducted for the cadets in the basic military subjects such as: *military history, army regulations, drill, small arms firing, tactics, and motor vehicle driving and maintenance.* Concurrently, *the cadets are thoroughly indoctrinated with Communist propaganda.*

Student Body Expanded

As previously stated, the original purpose of the *Suvorov* Schools was to provide an education for the orphans of war-hero army officers, but now, young partisans and even sons of living army officers are eligible to take the entrance examination. The Soviet Government provides the education, boarding facilities, and clothing. As a consequence, the competition for admittance to these schools is keen. Only above-average candidates are admitted, based upon physical and mental qualifications. Upon graduation, students who elect to enter the army as career officers are assigned immediately to officer candidate schools. Cadets with outstanding records are permitted to choose their own branch of service; those who do not desire to enter the army as careerists are allowed to attend a civilian university or to prepare themselves for a civilian technical position. Their training in the military profession is not lost, however, as they must enter the Army Reserve.

The United States has no comparable school system to the *Suvorov* scheme, except perhaps in the numerous private military academies which are quite expensive for the average boy to attend. Further, the earliest age at which a young American may be a cadet in the military services is 16 and 17 years at the naval and military academies, respectively.

The minimum enrollment age for the National Defense Cadet Corps in the American high schools is 14 years, hence it is readily apparent that Soviet military and political indoctrination has had the Russian boy six years earlier than any form of military training is able to enroll his American counterpart.

Officer Candidate School

The first step in the education of a Soviet Army officer is complete when he passes out of the *Suvorov* Academy and into the officer candidate school. Here he will learn the tactics and techniques of a special arm or branch such as infantry, artillery, and armor. The course of study generally will run for two or three years, depending upon the requirements of the particular arm. These schools are open, at least theoretically, to all Soviet citizens, especially graduates of the *Suvorov* Academies, enlisted men, and certain qualified civilians. Officer candidates must be at least 18 years of age and unmarried and not over 23. The physical requirements are rigid, and mentally the candidate must have at least the equivalent of eight grades of education. For the *Suvorov* graduates this is no particular problem, since most of them will have had the equivalent of a secondary school education at the termination of their cadet training. (A corollary to all this: the candidate *must be absolutely reliable politically*. No particular problem in this area, especially among those boys who started at age eight.)

Upon completion of the course at the officer candidate school, graduates are commissioned junior lieutenants in their arm and are then assigned to tactical units for duty and training. According to *The Soviet and Satellite Armies*, published by Department of the Army:

Each arm and service maintains at least one branch academy for the higher training of officers selected for advancement. The Frunze Academy, which pre-

pares officers for combined arms command and staff positions, serves as the branch academy for infantrymen, although some officers from other arms attend its courses. Courses range from three to five years according to the branch of the service. In order to qualify, officers must be under 33 years of age, must possess good records and must be politically reliable. Officers in attendance at these higher military schools vary in rank from lieutenant to major.

Branch academies probably constitute the most important phase in the officer's military education. Attendance at one of these academies is virtually a prerequisite for later appointment to general rank. The record achieved while at the Academy often influences the speed of advancement. Branch Academy programs can be completed through extension and correspondence courses.

. . . Officers are trained in advanced officers' school or branch academies before being promoted as company, battalion and regimental commanders, or for corresponding staff duties. Instruction is primarily theoretical, although summer training is supplemented with a few field exercises.

Education Vital

The over-all illiteracy of the Russian peasant and worker class prior to the 1917 Revolution is too well-known to be discussed in detail here. The educated class of old Imperial Russia was a rather small, restricted elite group consisting of the intelligentsia, the aristocracy, the bureaucrats, the clergy, and the army and navy officer personnel. In view of this situation, it is most interesting to note that the absolute need for an *educated* officer corps for the Soviet Army was the catalyst that caused the reaction and consequent feverish activity to supply the glaring deficiency.

With Moscow as the focal point of communism, it is quite simple to see the effect

that this sudden reaction was to have, not only in the direct sense in the Soviet Army, but in worldwide communism. Here was a movement dedicated to world revolution centered around "a learn as you go plan" leadership. Moscow knew that, in order to compete with or wage combat against Western or other nations, she must possess an officer corps professionally alert and equipped to make decisions at every level of command.

The officer corps, as a principal body of decision makers, was to be educated, trained, and tested in military theory as well as in practice. As the aristocratic corps of the old regime had been peopled with those belonging to a class possessing "education, culture, and refinement of manners," these attributes of the officer and gentleman had to be grafted upon the officer corps of former workers and peasants, many of whom were illiterate. The problem was how to make proletarians act like aristocrats, without thinking as such! Obviously, the military school system of the young Soviet Army had to bear much of the brunt of this heavy burden. Initially, the old Imperial officers, who stayed on (or were held) as advisors, were able to impart some of the traditions and customs of the old army in spite of the constant interference of that military monstrosity, the Political Commissar.

Every Soviet officer, down to the company commander, is assisted by a Deputy for Political Affairs (Zampolit). The unit commander is responsible for both the military and the political condition of his unit. The Zampolit is therefore theoretically subordinate to his unit commander. In practice, however, the political character of his work makes the Zampolit rather independent of his commander whose own political loyalty (and hence also chances of promotion) is subject to the Zampolit's evaluation.¹

¹ Zbigniew Brzezinski (Ed) *Political Controls in the Soviet Army*, Russian Research Center, Harvard University, 1954, New York, p 9.

The reforms of Mikhail Frunze carried on over into the 1930's, and gave the Soviet Army its first professionally trained officer corps. While it is true that many of the officers of the Red Army of that period were "converted" Imperial officers, it is more significant that *Frunze utilized these old army traditionalists to staff the military academies and schools*. In this manner a solid professional attitude was created within the new Russian Army Officer Corps.

Progressive Training

The progressive training of the Soviet officer in the requisites of his profession continues throughout his career. Interspersed with troop duty and correspondence courses are the tours of duty at the various branch schools previously mentioned. Successful completion of the courses at the branch school is a prerequisite for attendance at the higher staff academies. The Voroshilov Academy of the general staff is the equivalent of the United States War College. This school is the apex of the Soviet Army educational program and its students are given a three-year course which prepares them to serve as staff or command personnel at army corps or higher level. The students vary in rank from lieutenant colonel to brigadier general. For general officers of higher grades, a 10-month course is provided at the Voroshilov Academy.

Again quoting from *The Soviet and Satellite Armies*:

A thorough program of officer training has increased the all-around efficiency of the many present-day company commanders who received their commissions on the battlefield. (World War II.) The officer training program goes on up to general officers whose wartime promotions came so rapidly that they did not have time to broaden their military outlook. Many of these generals have spent a year or more since 1945 as students at the General Staff Academy.

Throughout the entire military school program, the Soviet aim is to pass on the lessons of modern warfare to future Army leaders. The Army leaders have attempted to fill in the gaps which existed in the prewar training of the officer corps. The majority of the officers, particularly unit commanders are now members of the Communist Party. Without a doubt, Soviet Army schools are producing class after class of well-trained and thoroughly indoctrinated professional soldiers who are loyal to the present regime.

Political Emphasis

The Soviet Government being established upon the philosophical and theoretical bases of socialism and communism has had a somewhat complex situation with reference to its professional officer corps. It is one thing to turn out a well-trained, professionally competent officer, but in the case of the Soviets, he must be more than just that, he must be politically reliable. A well-trained officer corps which was not dedicated body and soul to communism could be of considerable hazard to the very existence of the Soviet regime. (The purges were utilized to check this hazard.) In order to guarantee that the calculated hazard would be reduced to the minimum, or completely eliminated, the Political Commissar was established, as previously mentioned. In addition to the Commissar (*Zampolit*), the basic means of ensuring the maximum amount of loyalty and devotion to the Soviet regime was education along political lines. This program began in the Soviet Army in 1917-21, during the Civil War, when Military Commissars (*Voyenkomy*) were appointed to Red Army units. These were the ancestors of the long line of Political Commissars (*Zampolity*) which seriously hampered the professional development of the Soviet Army prior to the Finnish War of 1939-40. Colonel Louis B. Ely in *The Red Army Today* makes the following remarks about this situation.

The duty of watching the units of the army in the name of the Party is performed by the Deputy Commander for Political Affairs in each echelon above the company. This person is the successor of the commissar who for over twenty years, was in effect co-commander of the unit. In a reform following the defeats in the Finnish War of 1940, the commissar was abolished on the recommendation of the trusted Communist Marshal Timoshenko.

In the early days of the German invasion, when some 2,000,000 Red Army soldiers surrendered, the commissar was restored. Finding again that dual command dangerously cripples Army operations, in 1942 a succession of modifications were made in the duties of this official who, in that year, came to be called the political officer. Through him the party expresses its continuing interest in insuring that the army will be the most efficient possible instrument for the extension of the power of the Stalinist regime.

While it is not logical nor possible to equate "political training" in connection with the professional training of the officer corps of Western armies, it is necessary to do so in connection with an understanding of the professional grounding of every Soviet Army officer. Politics to the average professional army officer of the Western Powers has always been, more or less, a taboo. In fact, in the Army of the United States, before World War II, there were officers who had never voted in their lives.

The attitude of the Western Powers toward the political lives of their professional officers was, more or less, of the classical *laissez-faire* type *ex officio*, they were deemed loyal and reliable. The only political indoctrination the average American officer had received was at the hands of his parents or his teachers on all educational levels. The solemn oath he took upon receiving his commission was

his charter of loyalty as far as politics were concerned, "he was to support and defend the Constitution."

Conversely, the Soviet officer, as a member of an ideology dedicated to world revolution, requires more than a professional competence and legal loyalty; he must be a "convert" to the godless, materialistic dogma of communism. To this end his masters in the Kremlin have decreed that he must not only be educated militarily but thoroughly steeped in Marxism and Leninism.

Soviet officers are subjected to intensive political training. The so-called 'Marxist-Leninist preparation' occupies the most important place in the entire system of the officers' political education. Before every 'academic' year the Zampolity divide the subordinate officers into three groups: The lower group which studies the Short History of the CPSU (b); the intermediate group which studies the 'original' writings of Marxism-Leninism; and the higher group which studies in the 'evening universities of Marxism and Leninism.' The first two groups are organized in all units, staffs and institutions of the Soviet Army. Evening universities of Marxism-Leninism are organized in all military garrisons.

The GPUVS head, commenting on the report of the Nineteenth Party Congress, had this to say in this connection: 'A thorough system of Marxist-Leninist training has been organized in the Army and embraces all officers. Everyone studies, from the platoon commander right up to the military chiefs. Political studies are held regularly among privates and sergeants.' He noted that there were 135 universities of Marxism-Leninism in the Army and added: 'It is important to note that, in contrast to prewar years, more of the commanding personnel have begun to study in the system of Party education. Commanders comprise 74 percent of those who have completed their studies at the eve-

ning universities of Marxism-Leninism in the past two years.'

Spearhead of Communism

The following extract from Colonel Louis Ely's most valuable volume, *The Red Army Today*, is significant mainly because it sustains the writer's thesis. Without equivocation, Ely states that the armed forces of the Soviet Union are the spearhead of international communism. The education of those who lead that spearhead is by virtue of this statement—a most vital force in Communist power. In another sense, the Soviet Officers' Corps is the motivation behind the spearhead attack upon the nations and institution of free men everywhere.

The persons who control the international Communist movement are the most ruthless rulers since the days of Genghis Khan. Their intention is to rule the world. Their instruments for the extension of their power are two: Persuasion in the name of an appealing ideology—military force.

Persuasion is failing. Even the most violent dissident within the Western world is now beginning to see the horror of the unprecedented tyranny of the police state which the Presidium imposes in its most brutal form wherever it gains the power to do so. Even the most trusting Marxian socialist now sees that the Leninist system leads further and further from the unrealized dreams of Karl Marx. Persuasion is failing.

But the other instrument of Communist power, military force, is becoming more potent as Soviet Russia's armed forces become better equipped and trained. The armed forces of the Soviet Union are the primary weapon of international Communism today.

Conclusion

In summary it should be carefully noted that today, Soviet Russia has arrived at

² *Ibid.*, pp 39-40.

a "point of no return"; she must either continue to pursue her dynamic power struggle with the West or cease and desist. Historically and currently, she has shown no desire to cease the struggle and since Sputnik, the Western World has been abruptly awakened to the hard fact that Soviet scientific education and achievement have been quietly and swiftly making progress. As Garthoff puts it in *Soviet Strategy in the Nuclear Age*:

Now, suddenly prompted by such current spectacular technological achievements as sputnik, we tend to attribute all nature of superior concentration of skills to the Soviets. Yet, the idea of Soviet advance or advantage in the realm of military thought rarely, if ever, has been raised. It should be. For Soviet military doctrine figuratively has made a quantum jump from the bayonet age to the thermo-nuclear age.

If the scientific advancement of the Soviets may be ascribed to a highly regimented state-directed educational program for the select of the civilian masses, culminating in demonstrated skills in fields which were thought to be the preserves of the West, then it is high time that the Soviet military educational program be scrutinized and analyzed. For example: what impact have the Suvorov graduates had upon the Soviet military posture? This is a very important fact which could determine the future of militant international communisms and of the world.

General Guillaume in his book, *Soviet Arms and Soviet Power*, as previously quoted in this article, has mentioned a most important point for us to remember, if we are successfully to equate Soviet

military education with that of the West:

... In the USSR the military sciences are considered a field of study in the same way as philosophy and mathematics. Therefore the military academies come under both the Ministry of Armed Forces and the Ministry of Higher Education.

There are questions which we must candidly ask of ourselves. Are our military educational programs broad, inclusive, and well-designed to equip our military personnel successfully to combat mentally or physically the dedicated, indoctrinated Communist who knows no value, based on an absolute?

How much does the American officer actually know about militant communism and what it seeks to do? Do our Troop Information and Education Programs "take up the slack" in the soldiers' previous education and training on American political institutions?

What do our officers know about Soviet military policy? Do they know about the Soviet abridgement of Clausewitz? Do they know Clausewitz?

The above are only a few of the questions that come to mind when the broad subject of military education in the United States and the Soviet Union are compared by equation. Basically, the fundamentals of military education are the same the world over—except in Soviet Russia where they have added the dimension of political enslavement to the profession of arms. This fact must not be overlooked when Soviet military education is considered or compared with that of the nations of the West. In this factor lies the strength of Soviet military education as a source of Communist power.

Military Automation and Commonsense

Captain Carl M. Guelzo, *Transportation Corps*
US Army Element, Headquarters, United Nations Command, Korea



A MERICANS have a flair for the dramatic that occasionally results in confusing right from righteous, officious for official, and particularly mixing the prophetic and the visionary. Perhaps the heritage of Madison Avenue is at fault, but the shouts of acclaim which accompany technological advances are too eager at times. Military automation appears to be entering just such an overdramatized danger zone in which the applications of automatic data processing are apt to be oversold.

Psychologists deplore the use of the personal reactions of investigators in

studying human behavior, but a personal experience will illustrate this point.

During an automobile trip across the United States, the driver was traveling through the Nevada Desert one clear, chill morning just about daybreak. Suddenly, the sky behind him flared an actinic, electric blue. The cloudless sky ruled out lightning; but a quick glance at the boiling, orange-red glare behind the mountains provided the answer: The flash was not electric, but nuclear, and came from a test burst.

The traveler's first thought was: This is the most terrible weapon ever created by

The greatest advantage produced by automation is speed which is essential to the military. However, with all its capabilities the machine cannot think or reason—decision making still is the function of man

man. The reaction, however, should have been qualified slightly to transform the erroneous absolute into a more realistic comparative in this fashion: This is the most terrible weapon ever created by man up to this time. But here the delicate hand of Madison Avenue was apparent. Americans have been conditioned to regard most everything—even nuclear blasts—as either the biggest, best, handsomest or the shoddiest, most penurious, and revolting. The end product is that new developments are not so much sold too well as too hard.

In the field of military technology, this adulatory stage is particularly undesirable whether applied to new weapons or new administrative procedures. Automation, as a recent example of technological advancement, is unfortunately susceptible to overdramatization because of the spectacular "tricks" of relatively little practical value which the machines can be programed to perform in demonstration situations.

The electronic computer, for example,

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has been used on TV programs for such stunts as figuring income tax returns or selecting ideal marriage partners; but one machine operated by an agency of the Federal Government also produced data which tended to affirm that a substantial portion of the patients in maternity wards were male! In consequence, a good hard look at automation is necessary in order to assess the military capabilities of the automatic data processing system realistically.

What Is Automation?

First of all, what is automation supposed to do?

Broadly speaking, automation seeks to render automatic, especially by electronic means, ordinarily separate and mechanical functions.

Assembly lines have been popular targets of automation, and some factories have been automated to the extent that a product progresses from raw material to finished goods without human intervention. The battlefield, however, is not an industrial plant and wars cannot be fought on a routinized, assembly-line basis. The military applications of automation, at least for the foreseeable future, are thus restricted to other than fabrication or manufacturing functions. This does not lessen the value of automation, but should serve to channel attention and effort into avenues potentially most productive for the military services.

Perhaps, someday wars will be conducted without the slaughter and carnage usually accompanying human conflict simply by permitting an electronic computer to select the victor after considering the national resources of both contestants. But this is visionary rather than prophetic. Far from replacing the man on the field of battle, automation, at its current best, can only assist him. And in this assistance function the computers are of most value.

What Can Automation Do?

The second question, then, must be: Just what can the computers do?

That the computer, or electronic "brain," can do many things supremely well is beyond debate; but no collection of electron tubes and circuits is able to create something out of nothing or, by themselves, cause physical motion. An automated assembly line produces finished articles well enough, but only as long as raw materials are furnished. The machine itself cannot produce the raw materials. A computer may program an intricate system of cargo movements in support of an entire theater of operations, but the machine cannot transport the freight.

The most important application of automation to the functions of war is, thus, not physical, but rather involves assisting the human operators of combat to perform their functions of issuing orders, directives, and making decisions more effectively and efficiently. A computer cannot manufacture a tactical nuclear artillery shell, but it can assist in deciding the best time and place at which to use that shell. A computer cannot sail a ship, but it can help the logistician to decide what to put on that ship that will best support an operation by considering the factors of availability, quantity needed, and the time and place where use will produce the most results.

Machine Capabilities

The capabilities of the computer give a clue to the directions in which will be found the most useful military applications. A medium capacity machine, for example, of one manufacturer consists of 33 devices of nine different varieties when the particular system is expanded to its maximum size. These various units consist of the basic computer itself, components which handle magnetic and paper tapes, punch cards, sort and print data,

read punched cards and paper tape, and special typewriters which handle the machine input. With the full complement of component machines, this medium capacity system is able to store 180,000 units of information, and perform additions at a rate of 33,000 per minute, multiplications and divisions at a rate of 84,000 per minute, and make 120,000 logical comparisons every 60 seconds.

Very impressive, but what are the military services supposed to do with a machine that cranks out 84,000 multiplications a minute? The answer is in the very name of the system: ADPS, or automatic data processing system. Not, mind you, the conduct of wars or the fighting of battles, but the processing of data to assist in the conduct of war.

The machines are able to accumulate data, store it, process it, and translate it into terms needed by the commander in evaluating the military situation he faces. Obviously, the better and more current the data available to a commander or a logistician, the better will be the quality of his decisions. So many of these managerial type functions are based directly on a timely and detailed grasp of the many factors which comprise a given military tactical or logistical situation that statistics could hardly escape becoming the area of primary application.

Among the functions of compilation, storage, processing, and reporting the data in usable form, the greatest advantage produced by automation is *speed*. All these functions could, of course, be done manually. A system of paper reports, extracted and consolidated at each echelon in the military hierarchy, would produce much the same ultimate result. On the other hand, the amount of time and effort expended on manually compiled data systems would be prohibitive and largely wasted in a fluid combat situation.

This important element of speed is acquired by substituting electronic for man-

ual methods, just as the adding machine accelerated routine bookkeeping functions.

An adding machine is really a mechanical type of computer. The office calculator receives input data from the keys depressed by the operator, stores the data by a system of cams and gears, and produces processed data in the form of a computation through the mechanical action of the gears. Unfortunately, the capacity of a calculating machine is severely limited and is restricted almost completely to the arithmetical problem being worked on at the time.

These computational functions have been accelerated by the use of the now-familiar punched cards on electric accounting machines (EAM's). The EAM accumulated data and then performed sorting, reproducing, collating, tabulating, and other functions, but now free of a significant amount of human labor. Of course, the cards had to be punched manually from source reports, the various machines which performed each function had to be set by someone, the decks of punched cards hand-carried from machine to machine, and the entire operation supervised. Since one person could tend only a limited number of machines at one time, a staff of operators was necessary if an EAM system was to be operated at full capacity.

Once again the conduct of war has accelerated, requiring even faster manipulation of data than is possible with EAM. And the answer was automation. Where a single deck of punched cards had to be carried from machine to machine in an EAM system, with each machine performing its own specific manipulation of the data, the ADPS performs all the EAM functions simultaneously and without human intervention within the computer system. The use of coded electrical impulses by an electronic computer permits faster processing of data than with EAM, and completely outclasses the cam-and-gear arrangement of the hand calculator.

Data Processing Function Important

The ability of the electronic computer to store or "remember" large quantities of data and then manipulate this data makes the processing function of automation of primary importance to the Defense Establishment today. Automation is definitely not a panacea for all the tactical and logistical ills which beset the modern commander, but is a means of improving the quality and quantity of his decisions. The machine, of course, can never substitute for the mental processes involved in decision making. In fact, the introduction of electronics is proving to be much less of a scientific "revolution" than some would have us believe.

Automation in business and industry is not an unmixed blessing. A recent survey of private firms that had installed medium capacity computers uncovered a significantly disturbing element of dissatisfaction. Of the 280 firms polled, almost half (44 percent) indicated that their machines fell short of expectations. A great selling point had been the economies to be derived from automatic data processing. But "economy" comes under a variety of labels, not all of which are monetary in nature.

The major economy is in *time*, since electronic machines are able to function so much more rapidly than EAM or desk calculators. The economies thus derived are somewhat intangible in nature in permitting improvements in managerial functions, although the values of such economies can be enormous in either the competitive warfare of the market place or battlefield.

As a result, money economies should not be the primary reason for acquiring automatic data processing systems. Labor savings as reflected in payroll funds are disappointingly small. Someone must still operate the device that translates raw data into machine language, the computers must be programmed to perform the desired functions, the legendary button

pushers must be in attendance, and technicians must be on instant call to keep the machines operating.

Limitations

While the concept of ADPS is relatively simple, the practical realities of ADPS are maintenance headaches. For example, one computer installed by an Army agency in Washington went through a "de-bug-ging" process that stubbornly persisted over eight months. The actual hardware of this particular system also had to be installed in a specially prepared room in which the temperature was maintained at a constant 70 degrees. Anyone who has felt the considerable amount of heat generated by a computer in operation will understand the need for adequate air conditioning even if the expense involved must be deplored.

One of the most vexatious features of ADPS in its present state of development stems from the competitive struggle between manufacturers. Motorists, and the garage mechanics who must service American automobiles, would probably welcome a degree of standardization between the various makes and models that would permit unlimited interchangeability of parts. This, of course, is not likely to occur. The same situation exists in the building and design of ADP systems that virtually weds a user to the products of the original manufacturer.

This lack of interchangeability is only mildly irksome (if occasionally rather expensive) to the motorist, but this feature deprives the military data system of a vital element of flexibility. The unitization of ADPS components makes repair and replacement easy enough, provided the replacement parts are furnished by the original manufacturer of the machine. The time may come, possibly under the compelling necessity of war, when computer manufacturers will achieve ultimate standardization to preclude the necessity of maintaining large part inventories; but

until that time the Defense Establishment will just have to get along with the existing situation.

The larger machines used for the analysis of data are expensive, intricate, and sometimes exasperatingly temperamental—none of which are desirable characteristics for battlefield equipment. In addition, the state of the technology of automation is expanding so rapidly that some types have become obsolescent while still in the pilot-model stage. Nor can human operation be avoided with all the failings common to human activities. A computer, for example, can be programed to edit itself by examining and rejecting improperly coded or presented data. But completely erroneous information can be coded quite correctly and accepted by the machine, which will then grind out errors at truly phenomenal speeds.

Conclusion

Perhaps much of the fond expectations entertained for computer functions in the military service are premature. Eventually, the Army hopes to make computers available down to the battle group level; but the tactical use of these machines must await feasibility tests which set the availability date of field automation no earlier than 1965. And with all the slips possible 'twixt cup and lip, the 1965 date may prove to be none too accurate a forecast.

No electronic computer yet invented will take the pack off the infantryman's back, although possibly that pack may be lightened somewhat through improved logistical operations. No machine can relieve the unit commander of the soul-shattering burden of making decisions which affect men's lives. The value of the computers lies in their capacity to assist the commander in making his strategic, tactical, and logistical plans and decisions by storing huge quantities of variegated data bearing on his problems, "recalling" the needed elements of data almost instantly,

and producing analyses at high speeds translated into forms readily usable by humans.

Military automation must inevitably prove disappointing if it is expected to add additional manpower to the infantry squad or win battles while the soldiers spectate rather than participate. It must prove disappointing to the budgeteers who expect the machines to pour funds back into military appropriations. And it will prove especially disappointing to those who expect military miracles.

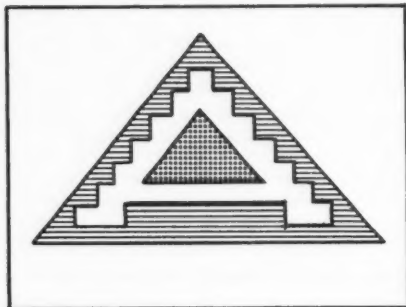
Used in the functional areas most productive of results, these machines will facilitate military operations, producing the important but less tangible economies of speed and efficiency in the processing and manipulation of data. Seen in this perspective—not as a substitute for human thought and effort, but as a tool to add yet another increment of efficiency to these human efforts—automation eventually will become of great value both as a tangible and psychological aid to the men who must conduct the defense of the Nation.

When we examine some of the Army's elements of strength, we cannot help but think of personnel. We will always look upon the individual soldier as the 'ultimate weapon.' Therefore, we are keenly aware of the fact that he must be carefully selected and groomed for his role. In this sense, he too must be modernized. Our manpower 'modernization' can be accomplished in a variety of ways, such as greater emphasis upon our personnel policies, upon the possession or acquisition of skills, upon early recognition and selection of leaders, and upon recognizing psychological stability.

Secretary of the Army Wilber M. Brucker

7th UNITED STATES ARMY

Material for this article was furnished by Headquarters 7th United States Army.—Editor.



FROM the Austrian Alps north to historic Fulda Gap, where armored cavalrymen cover the centuries-old invasion routes, 7th Army soldiers form the only balanced and fully equipped field army the United States has supported in time of peace.

Five full-strength divisions—3d, 24th, and 8th Infantry, 3d and 4th Armored—and three armored cavalry regiments—2d, 11th, and 14th—are the heart of the command.

A pair of operational Redstone groups (40th and 46th) and a well-rounded team of other combat units and support and service organizations make up a 7th Army which is the most powerful ground fighting force the United States has ever put in the field.

The 7th Army is America's major contribution to the North Atlantic Treaty Organization land forces and forms the

keystone of the Western defense line that faces the Communist satellites in eastern Europe.

In the words of one past 7th Army commander, General Bruce C. Clarke:

The 7th Army is a professional army. As such, it must set the standards of excellence in all things: training, marksmanship, tactics, maintenance, management, economy, intelligence, supply and evacuation, tactical atomic employment, troop leading, movement and other military techniques.

History

The 7th's history began on 10 July 1943 when it was activated at sea off the coast of Sicily. The command's first mission was the invasion and conquest of that Axis stronghold.

At the triumphant close of the Sicilian Campaign in August 1943, 7th Army's first commander and leader through the Sicily attack, General George S. Patton, Jr., described the 7th as "Born at sea, baptized in blood and crowned in glory." That fiery description has become the 7th's slogan.

From Sicily, the 7th swept into southern France under the leadership of General Alexander Patch and began a march that carried it across the Rhine, through Germany, and into Austria. At war's end it had captured Brenner Pass and advanced into Italy where 7th Army troopers had linked up with the 5th US Army at Vipiteno.

After a short period of German occupation duty, 7th Army was deactivated on 31 March 1946.

The 7th Army's rise to the position of pace setter for the entire peacetime Amer-

The 7th United States Army—a keystone of the Western defense line—has the responsibility of being combat ready and of creating and maintaining good relations between its soldiers and their German neighbors

ican Army began with its reactivation in 1950. Starting with a handful of 1st Infantry Division and Constabulary troops, World War II veteran Lieutenant General Manton S. Eddy pushed a campaign of "less spit and polish, more soldiering" that turned an occupation force into a combat-ready field army.

The Army's strength was bolstered during the Korean conflict and now the command is stabilized at approximately 150,000 men—the majority of them in what are considered "frontline" units.

Nearly 60 percent of the enlisted men and 40 percent of the officers are Regular Army personnel.

Within the American chain of command in Europe, 7th Army is the major troop element in United States Army, Europe (USAREUR). In the NATO framework, 7th Army is a part of the British-French-American Central Army Group, under Allied Land Forces, Central Europe.

Training Emphasized

What is 7th Army like day to day? To single out a simple parallel, it is like a heavyweight champion's training camp in the New Jersey mountains where the champ's skills are carefully brought out and polished a little more each day—but not to the degree that he is drawn fine, or overtrained, beyond his fighting peak.

Training is the hallmark of this American Army 4,000 miles from home. There is garrison training, formal school training, field training, day training, and night training.

The soldier who rotates from 7th Army to a stateside post, or to civilian life, carries with him the memories of many months in the field. The average line soldier spends at least half his time away from his comfortable *kaserne*, either in a training area or on one of the numerous field training exercises or command post exercises that keep this army at its fighting best.

There are three major military reservations in the American sector of West Germany that 7th Army uses for heavy fire problems, unit maneuvers, and training tests. They are Grafenwoehr-Vilseck, Hohenfels, and Wildflecken. Former Wehrmacht proving grounds, these rugged, uninhabited barrens offer a variety of terrain and sufficient space to maneuver with realism.

Baumholder, a training area near the Saar, is shared with the First French Army and with the new German *Bundeswehr*, while farther north, at Belsen-Hohne, 7th Army armor men work out on the vast NATO ranges there. Still in the north, at Todendorf on the Baltic Sea, American artillerymen occasionally use the German-run firing range that extends out over the water.

Large-scale maneuvers, the kind that involve 50,000 to 100,000 American soldiers at a time, are conducted across the German countryside.

Through support of the maneuvering infantryman, tank, and artilleryman the service unit soldier gets his training. Ordnance men, quartermasters, and signal corps troops grow accustomed to working in the field, operating out of improvised shelters—in a word, they come to realize their capabilities under near-combat conditions.

There is plenty for the service unit soldier to do. The 7th Army troops eat enough bread at one sitting to feed Reno, Nevada, for a week. One month's coffee consumption would fill eighty 10,000-gallon tank cars for any stateside railroad. One turkey dinner means 5,700 birds upon the table.

An ambitious 7th Army school program also does its part to keep the officer and enlisted man informed and capable. In Fiscal Year 1959, 5,000 men graduated from the 7th Army Noncommissioned Officers' Academy, 1,350 from the Army Tank Training Center, 450 from the 7th Army Aviation Training Center and 300

from the Air-Ground School, a joint service venture at Ramstein Air Force Base.

In addition, USAREUR conducts full-time service unit schools (military police, ordnance, signal, quartermaster) that are open to 7th Army personnel.

Other nations are as interested in 7th Army's never-ending training as the command is itself. Last year, observers from 19 NATO and other friendly nations vis-

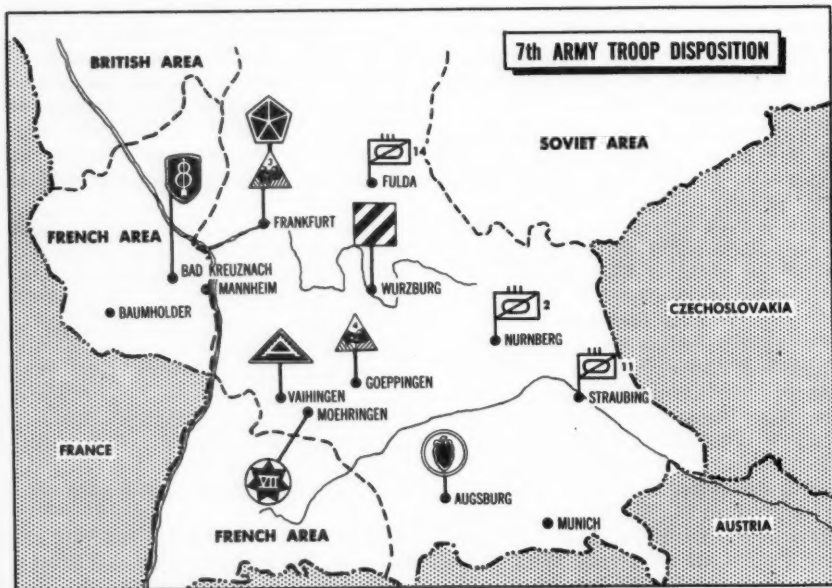
ited 7th Army, watching and absorbing 7th Army techniques and operations.

One French officer, attending last February's winter maneuver, Exercise *Free Play*, explained the international interest this way:

The 7th Army is the only complete, combat-ready field army in Western Europe today. When you have such a maneuver as this one (*Free Play* put 50,000 US troopers out across the frozen Bavar-

Operational Readiness

The 7th Army's vigorous training program, coupled with its strategic position



ian landscape) it is a rare opportunity for many of us to see troops deployed in volume and to witness all the supporting activity that goes with such deployment. We consider it a necessity to watch 7th Army maneuvers.

This readiness is indicated by the monthly practice alerts (at least one for each unit) conducted within the command. Thirty minutes after an alert notification, 7th Army can muster 50 percent of its total strength. Two hours after an alert call, at least 85 percent of the command is combat loaded and on the way to pre-designated rendezvous.

Three of 7th Army's units perform one of the most important military jobs in the world today along with their training.

The 2d, 11th, and 14th Armored Cavalry Regiments are 7th Army's eyes and ears along the Iron Curtain. Their mission is to alert the command, and the Free World, in case of attack.

Any ground assault coming into the American sector of West Germany will be detected and met first by these screening regiments who perform this traditional cavalry mission in conjunction with their day-to-day training.

No other units in the United States Army today, except for those in Korea, have an actual tactical mission to perform, and few units anywhere have a job of such import.

Less grim in character than its primary mission of keeping combat ready is 7th Army's self-imposed secondary mission: creating and maintaining good relations between its soldiers and their German neighbors.

Leaders of the 7th Army feel it is the task of every man, officer and enlisted, to make the German-American community relations program work. The days of friendliness at arm's length ended when General Eddy swept his small command of occupiers into a field army and braced it for the defense of Europe. Today, the 7th Army soldier applies himself to the job of maintaining good will with as much zest as he applies to his military job. Often he combines the two.

Engineer units construct village soccer fields and work on other community projects as a part of training; countless companies sponsor orphanages and old folks homes; German-American social clubs blossom and thrive.

The success of this social spadework can be measured by the fact that for the past three years that professional arbiter of success and failure in the public relations field, the American Public Relations As-

sociation, has awarded 7th Army either first or second in the competition for honors in the field of international relations originating outside the United States.

The 7th Army has considerable economic stature in Germany, also. Approximately 13 million payroll dollars are converted into German money each month, pouring that much more monetary blood into the booming German economic system.

Conclusion

Along with maintaining its two primary missions—an ever-ready combat readiness and local good will—7th Army serves as a research arena for Department of the Army policies, tactics, and equipment.

American arms in general, and 7th Army in particular, underwent a revolutionary change in 1953.

Department of the Army assigned 280-mm gun battalions to the 7th, marking a change in the complexion of tactical warfare. The 7th Army was the first field unit to get these massive support weapons which can fire both conventional and nuclear projectiles.

Five years later, in 1958, 7th Army received the first operational *Redstone* group established by the United States, the 40th Artillery Group.

Redstones, 280's, the latest in heavy tanks, full NATO coordination—times have changed since the July day in 1943 when General Patton took command of a new-born 7th Army off the shores of about-to-be-invaded Sicily.

The mission of the 7th Army has changed along with the times. Defense, rather than attack, is the 1959 job.

One thing has not changed. Well-trained, tough, confident Americans fill the ranks of today's 7th Army as they did when General Patton led his 7th from the assault boats in Sicily.

The following official United States Army photographs indicate the scope of activities conducted within the 7th Army area.



Above, 7th Army infantrymen make ready to push off across the Main River in Germany during one of the many field exercises held to keep the 7th Army combat-ready. Shown below, a 7th United States Army *H-34* helicopter demonstrates its usefulness by airlifting an 8th Infantry Division howitzer carriage during an army field problem.



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Above left, noncommissioned officer students at 7th Army Noncommissioned Officers' Academy spend after-class time on studying and getting equipment up to the school's high standards. Above right, a 280-mm cannon fires at 7th Army's Grafenwoehr range. Below, an engineer unit works on a bridge that will carry troops across the Main River.



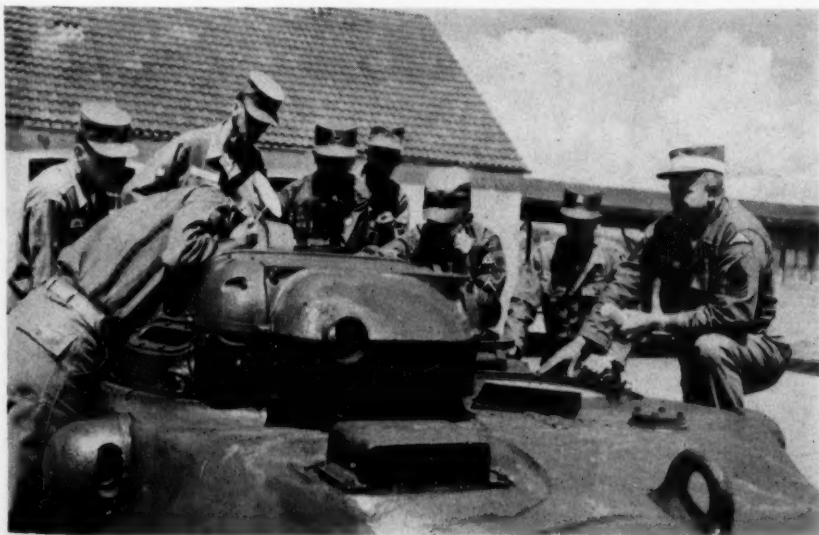


Service troops do much of their work under field conditions. Above, 7th Army ordnance repair men use wrecker to lift a powerpack from a 155-mm self-propelled howitzer. Below, 7th Army medics tend to simulated wounded during command field problem in Germany.





Above, 7th Army armor men practice loading techniques on a mockup tube at the 7th Army Tank Training Center. Below, students peer into a turret during classes at the center.





Above, 7th Army Tank Training Center students move to the Grafenwoehr-Vilseck ranges for proficiency tests as their cycle at the center closes. Shown below, 7th Army infantrymen leap from a tank that moved them up to the "front" during a command maneuver.





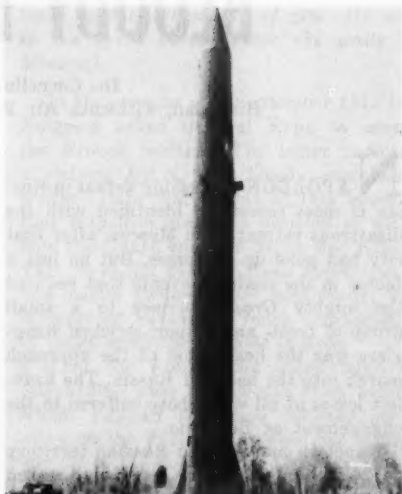
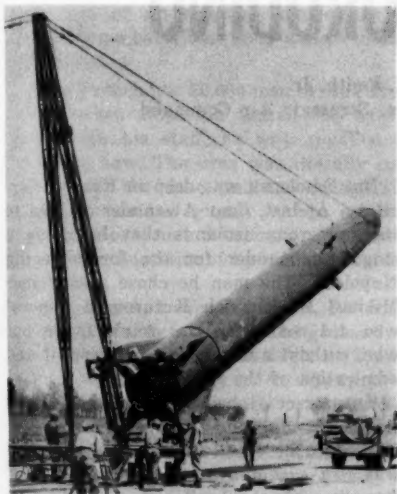
Above, German villagers watch mock action of an armored division during a 7th Army field problem. Below, an armored cavalry regiment convoy thunders through a Bavarian village on its way to a "combat" mission during one of 7th Army's many field problems.





Above, 7th Army tanks, sparing German farmland, move in convoy along Bavarian back roads during Exercise *Free Play*, the command's 1959 winter maneuver. Shown below are crewmen standing by their *Redstone* during a 7th Army demonstration which was held to show European press representatives how the missile is assembled and is launched.





Above left, utilizing the upright "A" frame and the horizontal "H" frame, modern-day artillerymen raise a *Redstone* into firing position. On the right above, a *Redstone* missile, part of 7th Army's mighty arsenal, stands erect during a public demonstration of the weapon. Below, an *Honest John* leaves its launcher and heads for the target.



BLOODY BORODINO

Dr. Cornelius C. Smith, Jr.

Historian, Fifteenth Air Force, Strategic Air Command

NAPOLEON'S crushing defeat in Russia is most commonly identified with the disastrous retreat from Moscow after that city had gone up in flames. But no less a factor in the chain of events that reduced the mighty *Grande Armée* to a small group of frost- and hunger-stricken stragglers was the heavy cost of the approach march into the heart of Russia. The heaviest losses of all were those suffered in the engagement at Borodino.

Napoleon had entered Russian territory on 24 June 1812, when his army crossed the Niemen. The czar's forces, lacking unified command and an adequate defensive plan, withdrew in the face of the invader. Only in the north, where a French column was moving toward St. Petersburg, did Russian resistance materialize—a feat which was to weigh heavily in the balance in later phases of the campaign. On the main front, along the route to Moscow, the Russians stayed ahead of the French (or rather the international conglomerate of forces under French command) except for occasional contacts. Napoleon was eager for battle but Barclay, commanding the Russian First Army in front of him, considered that primary consideration should go to a preservation of his forces for combat action on terrain of his own choosing. Yet the rear guard actions became increasingly more tenacious and costly for the French. Smolensk was only briefly defended, yet the Russians inflicted heavy damage on the French.

But Smolensk was deep in Russian territory. At last, Czar Alexander yielded to the numerous demands that he name a single commander for the forces facing Napoleon. The man he chose was Prince Mikhail Ilarionovich Kutuzov, a general who did not enjoy the czar's favor but who, without a doubt, held the respect and admiration of the troops.

Kutuzov continued the withdrawing tactics of Barclay and for the same reasons. The place he chose at last to give battle was just east and south of the village of Borodino, about 70 miles west of Moscow. Here the armies met in what was to be one of the bloodiest encounters in the battle-marked career of the man from Corsica.

Without Parallel

For sheer courage and waste of human life, Borodino has no parallel in any of the Emperor's campaigns. Until Borodino, Eylau was perhaps the most sanguinary, yet men who had been in both engagements scoffed at any serious comparison between these two. In the waning hours of battle, survivors gazed across a field literally jammed with dead and dying. It was almost unbelievable.

Within the space of a few hours, the Russians had lost 58,000 men, about half of their entire army. Of Vorontsov's Grenadier Division, less than 300 of the 4,000 who began the fight remained alive by midafternoon. The Shirvansk Regiment lost all but three officers and a handful of

One of the bloodiest encounters of Napoleon's battle-marked career was that which took place at Borodino. For sheer courage and waste of human life, this battle has no parallel in any of the Emperor's campaigns

men out of an original complement of 1,300. Some battalions were almost totally destroyed.

The French lost 50,000 men. At the day's close, when Napoleon toured the battlefield with his staff, he was appalled at what he saw. The area was literally covered with the dead and the dying. The Emperor stalked glumly along, scarcely speaking or communicating in any way. Slowly the enormity of the situation settled upon him.

Napoleon had expected losses, but nothing like this. Actually, he had guessed his casualty figure to run as high as 20,000. Only two nights before he showed surprise when he was told that no prisoners had been taken in the capture of the redoubt at Shevardino. Obviously, Kutuzov had whipped the defenders into a frenzy of resolve. The Russians would be dislodged only at great cost. In an effort to spur on his men, Napoleon issued a proclamation on the eve of battle:

Soldiers, here is the battle you desired. . . . Conduct yourselves as you did at Austerlitz, Vitebsk, Friedland, and Smo-

Dr. Cornelius C. Smith, Jr., is the author of "Our First Amphibious Assault," which appeared in the February 1959 issue of the MILITARY REVIEW. He received an A. B. degree in history from the University of Southern California in 1937, and his Master and Ph. D. degrees from Claremont Graduate School, Claremont, California. In 1937 he was commissioned in the Marine Corps and assigned to the Basic School in Quantico, Virginia. On duty at the Navy Yard at Pearl Harbor on 7 December 1941, he served in the Pacific throughout the war with the III Phib Corps, and amphibious forces of the Pacific Fleet. He has traveled extensively in Spain and has visited the Spanish colonial possessions in Africa, NATO groups in Naples, Athens, and other Mediterranean ports, as well as US Strategic Air Command bases in Morocco. A colonel in the Marine Corps Reserve, he now is the historian for the Fifteenth Air Force, Strategic Air Command, March Air Force Base, Riverside, California.

lensk, and let them say of you: He was in the great battle under the walls of Moscow!

On the evening of 6 September 1812 the Emperor asked General Rapp to assess the French position. The latter forecast a victory, but a very bloody one. Some writers state that it was at this moment that Napoleon made his decision to withhold the Guard once the battle was joined. This move did provide fresh forces for a new battle (which never developed), but it deprived harassed French commanders of relief when they needed it most.

What the French had encountered at Shevardino were earthworks from behind which Russian defenders inflicted casualties on the French that were out of proportion to the disparity in numbers. These entrenchments, called "Bagration Flèches" after the Russian general who commanded the left wing, were destined to play an immense part in the big battle. Time and again masses of French troops would storm them, only to be cut down by artillery at point blank range. In the end they would be taken, but only after mountains of men lay dead and dying before them.

The Advance

On 7 September Napoleon advanced toward the Russian positions in three columns. The Polish prince Poniatowski led the right column, and Viceroy Eugene of Italy the left. Napoleon rode with the center column along with Ney, Murat, Junot, and the entire Guard. The advancing columns were comprised of five infantry corps, four cavalry corps, and the Young and Old Guards. The accessible breakdown of corps by numbers comes from Russian sources, and is generally conceded to be somewhat exaggerated. According to these figures, Marshal Davout's First Corps numbered approximately 48,000 men. Ney's Third Corps had 20,000. The Fourth, under Viceroy Eugene, was slightly larger with 24,000 men, while

Poniatowski's Fifth had 17,000, and Marshal Junot's Eighth the least of all, just under 13,000. All of the cavalry, 22,500 troops, were commanded by Joachim Murat. Mortier's Old Guard, 13,000, and Lefebvre's Young Guard, 27,000, were under the direct control of the Emperor.

Simple arithmetic with these figures shows Napoleon with almost 190,000 men at Borodino. Clausewitz, who was with the French, credits the French Army with just

The right wing was under the command of General Miloradovich, and the center under Dokhturov. These forces comprised the Russian First Army commanded by Barclay de Tolly. Miloradovich led two infantry corps, the Second and Fourth, and two cavalry corps, the First and Second, in all about 26,000 men. Dokhturov had at his disposal one infantry and one cavalry corps. Kutuzov held 36,000 reserves behind the center and right wings.



about that number before Smolensk, but calculated that casualties there and at Valutino and Shevardino, coupled with sickness and desertion, had brought the total figure to about 130,000 men. This figure is generally accepted.

Before Napoleon, the Russian Army lay stretched along a wide front. The position was generally upon a low convex curve of hills rising just behind Borodino. On the Russian right was the winding valley of the Kolotza, a tributary of the Moskva, and before the center and left the ground sloped down into a small stream. It was on this more exposed side that Kutuzov had thrown up the "great redoubt."

In all, these troops numbered about 75,000 men.

The left wing was commanded by Prince Bagration. Here, two infantry corps and one of cavalry made up the Russian Second Army, about 34,000 men. In addition to the First and Second Armies, the Russians could call on several thousand Cossacks, and about 10,000 militiamen from Moscow and Smolensk. Over-all, Kutuzov commanded approximately 128,000 men at Borodino. It is seen, then, that in the matter of numbers the opposing forces were almost equal. The Russians had more guns: 640 as against 587 French pieces. Some historians say that the Russian artillery was better than the French, using

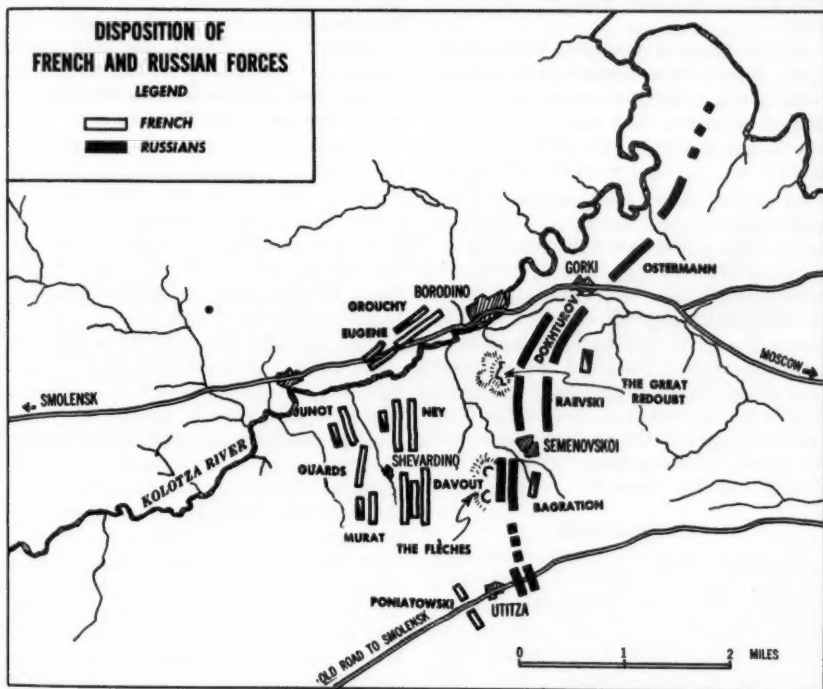
heavier shells, and having greater range. As the pattern of fighting developed, neither range or caliber seemed to matter very much.

French Attack

The opening move in the big battle was a French attack on the village of Borodino. Russian resistance was fierce and

up in great haste, and so were weak and slipshod in character. Even so, the Russian defenders were well-enough covered to throw back the French attacks with appalling losses.

By seven o'clock, Napoleon realized that his success depended on the reduction of the redoubts. He had 150 cannon brought



French losses serious but the village fell to the French. The main battle developed, however, by five a. m. south of the Kolotza where Ney, Murat, and Davout struck Bagration's position at Semenovskoi Gully. Well-placed Russian batteries cut down the French like a scythe cuts down wheat. In the first wave alone the French lost several general officers.

Bagration's entrenchments had been put

up to pound them into the earth. Cannoneers plastered the positions unmercifully, and when the barrage lifted, Ney, Murat, and Davout hurled thousands of troops into the breach. Vorontsov's division was crushed. Neverovsky's division was shattered, and still the Russians hung on. Now Napoleon's favorite Marshal, Ney, signaled for reinforcements. He was refused.

The struggle for the earthworks continued. Eyewitnesses relate that they were glutted with dying men and horses. Here and there the French would breach the fortifications only to be ejected again. The 150 guns had not been able to dislodge Bagration's troops. Napoleon ordered up another 250 guns, and soon thereafter all 400 guns were pounding the positions anew.

As the Emperor readied a new assault force, Bagration counterattacked, temporarily putting the French on their heels. Davout answered with his own counter-attack, and it was in this melee that Bagration was hit and mortally wounded.

As rumors of his death spread, the situation deteriorated. Dismay and confusion spread among the ranks. Without his inspirational leadership, their bravery and determination lost some of its purpose. So close was the order of battle, and so frequently did the positions change hands, that the artillery on both sides lacked time to modify its range and for a space shot down its own men. Before the Russian left flank fell, the small land area was the target of more than 700 guns; 400 French and 300 Russian.

Left Flank Falls

At last, a mass of cuirassiers charged the hill, swarming upon the earthworks like ants. They fell before the Russian groups like those who had assailed the positions before them. Then another wave of French infantry charged. These were the soldiers of Grouchy and Chastel, and they were able to sweep the remaining resistance before them.

With the fall of the left flank, Napoleon turned his attention to the Russian center. Now the French advance was being held up by Raevski's "mound battery," well dug in on a rise of ground to the front. General Bonamy seized the position by a direct frontal assault, but was hurled back immediately. Again he stormed the posi-

tion, and again he was repulsed. Now a second great artillery duel developed. The din was fearful. Never had there been such horrendous noise; not at Eylau, Wagram, or any of the other great battles. Rifle fire was inaudible, and voice commands meaningless.

Napoleon ordered Raevski's position taken at all costs. At close range, the French artillery tore at the Russian emplacements. Men, horses, and field pieces became a bloody intermingling of wreckage and death as the Raevski battery was taking fire now from three sides.

At this point, Kutuzov hit Napoleon's rear with a slashing attack by Platov's Cossacks and Uvarov's First Cavalry Corps. There were relatively few French casualties resulting from the probe, but Raevski gained a breather, and the incident strengthened the Emperor's resolve to hold off his reserves.

Napoleon now directed Viceroy Eugene and a portion of Murat's cavalry to join the effort against Raevski. Konovnitsin, who had taken over in Bagration's place, came to Raevski's aid, but neither he nor Dokhturov who soon replaced him could right the balance. By now three-fourths of the defending force were down and the issue was in doubt. Cavalry units stormed the positions from the rear, while Eugene's infantry flung itself onto the battery from the front. In the hand-to-hand struggle that followed not a single prisoner was taken. Once in command, the French slaughtered every survivor of Raevski's force. The "mound battery" had fallen.

And still the Russians were not through. From other scattered positions cannonballs skittered through the air, some of them thudding to earth near Napoleon himself, and rolling almost to his feet. Napoleon threw his cuirassiers and uhlans into the fight. These were thrown back by Count Ostermann's infantry and some Russian cavalry. The fighting grew desultory, but there was no real letup.

Battle Ends

Evening came, and only then did the slaughter cease. Napoleon's costliest battle drew to a close. He had won, but at what a price! There was no elation in his camp. Ney went so far as to say, although not within Napoleon's hearing, that "the Emperor has forgotten his trade." Napoleon was to say later, on St. Helena, "The most terrible of all my battles was the one before Moscow."

Napoleon led his troops away from the battlefield even before Kutuzov gave the order to retire. Thus in Russian eyes,

the wholesale burning. Almost half of the Russian Army was destroyed, and over one-third of the French Army. The roads leading into Moscow were choked with wounded soldiers and fleeing peasants. The holocaust was complete.

Napoleon has been criticized for not committing the Guard during the assault on the great redoubt. Actually, it was held ready to be used in any part of the line, the gunners ready to join the fight on order. Napoleon's defenders are of the opinion that the needless sacrifice of these elite troops would have been perilous, as was



Borodino became the symbol of a great moral victory over the French. Realistically, the Russian Army had suffered a defeat, but this was more evident to the generals than to the people. After Borodino, Kutuzov never offered to meet the French again in an all-out struggle. There were minor clashes at Tarutino, Maloyaroslavets, and later at points along the French retreat route. These affairs were sharp, but can in no way be compared with Borodino.

The great Battle of Borodino was over. By all accounts the battlefield was a fearful sight. In disposing of the dead, clean-up brigades burned many wounded men alive. There was no sanitary service other than

indeed his own feeling. His Guard was the cream of his army and he could depend upon it even when French regulars might defect or turn into bands of looting marauders.

The day brought scant glory to the French generals as a whole. Ney, as usual, was brilliant, and so was Murat. Grouchy's conduct was above reproach. For his part in the battle, Ney received the title Prince de la Moskva.

Moscow

One week after the battle Napoleon stood on the crest of Poklonnaya Hill. Moscow lay spread out before him, its golden domes sparkling in the late sum-

mer sun. He had reached his goal. Moscow was the connecting link binding Europe and Asia, and Napoleon saw it as the key to mastering the world.

But there was no one to conquer; no one to rule. The people had vanished and left behind a dying city. As they left, fires began to spread across the city, slowly at first, and then with increasing intensity

As comrades fell by the way, eager hands snatched away bits of clothing for added warmth.

A few miles west of Mozhaisk the columns came upon their dead brothers. Ironically, the army was passing by the scene of one of its great triumphs. It was passing Borodino.

Soon hunger became acute. Kutuzov's



until at last the entire city seemed lost in a vast sea of smoke and flame.

After a few frustrating weeks in the demolished city, it became apparent that evacuation was Napoleon's only choice. On 19 October he left Moscow.

Withdrawal Begins

At first the weather was fair; no frost, no snow, only the bright sharp days so characteristic of fall in northern climes. As the weary miles wore on it began to turn cold, and men wrapped their clothing more tightly about them to keep warm.

army and the partisans were always waiting in the distance, wolf like, to pounce upon stragglers and foragers. First the stores looted in Moscow were eaten, then the horses, and then anything that might sustain life.

Napoleon had cached supplies in Smolensk against reverses, and now headed for them. Wearily his dwindling forces moved on, through Gzhatsk, Vyazma, Semlovo, and Mikhailovo. Finally, on 8 November they entered Smolensk. Hearts sank. There were no stores. Russian partisans had burned the city as Moscow

had been burned, and the supplies were consumed.

Situation Deteriorates

From that moment on the retreat became a rout. All of the terrible sufferings experienced thus far were to prove nothing when compared with the hardships ahead. From Smolensk to the Niemen, Napoleon would lose all but a few thousand of his troops, and the long road would be cluttered with frozen bodies.

After crossing the Berezina, the condition of the French Army was catastrophic. Men and horses were literally frozen in the ice, half in, and half out, like the grisly Doré illustrations for Dante's *Inferno*. Ravenous men fell upon horses and tore at great chunks of raw flesh.

The thermometer frequently fell to 45 degrees below zero. Marshal Berthier reported his artillery out of action because the horses had been eaten and most of his gunners had their hands and feet frozen. Soldiers could not hold their rifles to fire them. Many could not even walk, and so leaned up against trees and died there, or simply fell silently down into the snow. And all the while the enemy harassed

these poor scarecrows with cavalry and with guns drawn on sleighs. Exhausted by hunger and cold, men of the *Grande Armée* perished by the thousands. The road was strewn with dead. All traces of discipline vanished. At night, soldiers actually built shelters with the dead bodies of their comrades, piling them up like logs to keep out the howling winds.

When the pitiful remnants finally crossed the Niemen, less than 30,000 remained alive of the *Grande Armée* of 570,000 men. More than half a million of Napoleon's soldiers lay dead in Russia. Actually, these figures are debatable. John H. Rose, in his *Life of Napoleon*, lists a mere 20,000 as surviving an original force of 600,000 men. On the other hand he lists the Russian and French losses at Borodino at about 40,000 each. Other sources grade French losses down as far as 32,000.

In any case, exact casualty figures will remain unobtainable, but no historian will challenge the assertion that Borodino was the bloodiest of Napoleon's battles, and heralded the disaster that was to strike the great French soldier at Waterloo.

... another requirement which is underscored by the complexity of modern equipment and the dispersion of modern battle is adequate logistical support. The problems of providing that support under such conditions are numerous and difficult. Nevertheless, for an Army to be modern, the specialized requirements of materiel and personnel must be met, the extended distances from the supplier to the users must be traversed, and the added vulnerability of supply complexes in this day of nuclear weapons must be overcome.

General Lyman L. Lemnitzer

INFILTRATION AS A FORM OF MANEUVER

Lieutenant Colonel Reuben D. Parker, *Infantry*
Faculty, U. S. Army Command and General Staff College

OUR division commander had conceived the brilliant and daring plan of infiltrating two regimental combat teams into the high ground northeast of Velletri. This was to be done through terrain without roads and through an enemy line believed to be lightly held.

This action, described in a history of the 141st Infantry Regiment (*Five Years—Five Countries—Five Campaigns*), presents an opportunity to explore a bolder, higher level application of an old tactic—infiltration.

Infiltration has long been considered a valuable adjunct to the conduct of operations. As a technique it has been employed in deception, in guerrilla tactics, as a harassing agent, as an intelligence collection instrument, and in a supporting role in the attack. As such it was conceived as essentially a small unit activity, and more often, as possible only by groups of three to six men. However, histories of World War II and the Korean conflict contain examples of successful infiltration activity by units up to division size. The success of these operations against linear defenses gives promise of success by larger forces in a battle area characterized by widely dispersed forces. This concept of infiltration as a successful and principal form of maneuver is not dependent upon the development of flying saucers, tunnel digging engineer equipment, or other futuristic developments, but appears feasible today.

Much of our thinking on the conduct of

future war has been defensive in nature. Writers have advocated "hugging tactics" as a tactical means of survival. The awesome power of nuclear weapons has put the words mobility and dispersion on our lips. Although mobility certainly has application to offensive operations, too many of us consider mobility and dispersion as techniques to escape the effects of nuclear fires. The principle of the offense should continue to guide our thoughts on the conduct of warfare. So, in addition to protection of our combat power, we must consider ways to bring its full weight to bear against the enemy to achieve a tactical decision. Actually, infiltration provides us with the opportunity of employing these defensive techniques of mobility, dispersion, and hugging tactics in an offensive maneuver.

Definition

The definition of infiltrate contained in Army Regulations 320-5, *Dictionary of United States Army Terms*: "move through an area or territory occupied by either friendly or enemy troops or organizations. The move is made either by small groups at extended or irregular intervals or by individuals" does not provide an adequate description of infiltration as a form of maneuver. Various definitions are employed in categorizing the forms of maneuver. The basic forms of maneuvers are the envelopment, with its variations of the vertical envelopment and the turning movement; the penetration, including multiple penetrations; and the infiltration.

Infiltration on the nuclear battlefield may constitute the preferred form of maneuver by units up to division size, and should be considered an alternative action rather than an aid which supplements direct attack

The distinction between these forms exists primarily in the intent of the commander, since most operations will employ a combination of the forms of maneuver. An operation may represent a different form of maneuver at each echelon of command.

The purpose of the infiltration is to deploy strong forces in the enemy rear for the execution of decisive tasks while exposing only small forces to enemy fires during the passage through enemy defenses. In the infiltration the attacking force passes through the enemy's principal defensive area, avoiding major engagement, and disposes itself in the rear of the enemy for decisive action. The force may accomplish its attack mission by attacking lines of communication, supporting units, installations in the rear of the forward defense areas, or by seizing and controlling defiles. The attack is the decisive phase in which the infiltrating force is supported by long-range fires and attacks by other forces against the forward portions of the enemy defense.

Phases

The infiltration may be accomplished in three phases. First, the passage through the enemy forward defensive area avoiding, if possible, engagement; second, the assembly in the enemy rear and preparation for the attack; and, third, the attack.

Lieutenant Colonel Reuben D. Parker was graduated from Murray State College, Kentucky, in 1939. He also is a graduate of the Advanced Course of the US Army Infantry School in 1951. During World War II he served with the 141st Infantry, 36th Division, as company commander and regimental staff officer. Other assignments include duty with the Intelligence Division, Department of the Army; three years at the American Embassy, Paris, France; ROTC instructor duty at the University of Arkansas; and three years in intelligence in Japan with Provisional Corps, Japan, and Headquarters Far East Command. Following completion of the Associate Course of the USA CGSC in December 1957, he was assigned to the faculty of the College.

In some respects the infiltration may be likened to the penetration since both go through the enemy position. The significant difference is this: in the penetration, maximum combat power is exerted in the passage through the enemy (usually at the point of rupture). In the infiltration, maximum combat power is applied only after the passage through the enemy position and subsequent assembly, preparation, and initiation of the attack.

Certain characteristics of the terrain and nature of the conflict influence the selection of the infiltration as the desired form of maneuver.

The infiltration may be favored when operating under the following conditions.

1. The enemy is widely dispersed and supported by nuclear weapons. Dispersion of the enemy facilitates the passage of the infiltrating force through the creation of gaps. Electronic surveillance devices used by the enemy to cover gaps must be neutralized. The enemy nuclear weapons capability dictates the adoption of a dispersed pattern by our forces.

2. Operations are being conducted over rough, heavily wooded terrain. The rougher the terrain and the more impossible it seems as an access approach, the more logical is its consideration. Such areas are likely to be lightly held and passage without detection becomes more probable.

3. The scale of nuclear fires is at a very high level. When the scale of use of nuclear weapons is at a high level, fires tend to become dominant over maneuver. High-level usage may preclude the movement of large forces in easily recognizable mobile attack formations. Greater reliance will be placed on undetected movements of small groups.

World War II

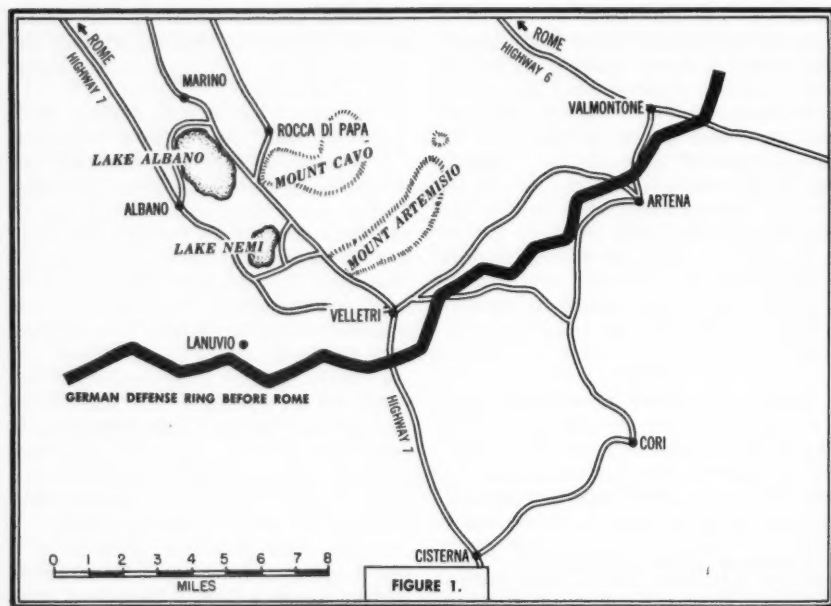
With respect to the foregoing concept of infiltration, the action of the 36th Division in the battle at Velletri, Italy, is of interest.

The last barrier to an Allied entry of

Rome from the Anzio beachhead area was a defensive line pinned on Velletri and Valmontone (Figure 1). The 34th and 45th Divisions were attacking west of Velletri while the town was under pressure from the 36th Division. On 27 May 1944 the 36th Division had been committed astride Highway 7 about three miles northwest of Cisterna. The original plan called for the 141st Infantry to swing around

was approved. The plan, basically, was to infiltrate two regimental combat teams deep into enemy territory to reach the heights of Mount Artemisio behind Velletri. The 142d Infantry was to lead the infiltration followed by the 143d Infantry (which had been relieved before Velletri by the 111th Engineer Battalion).

At 2255 on 30 May 1944 under the pale light of a new moon the foot movement



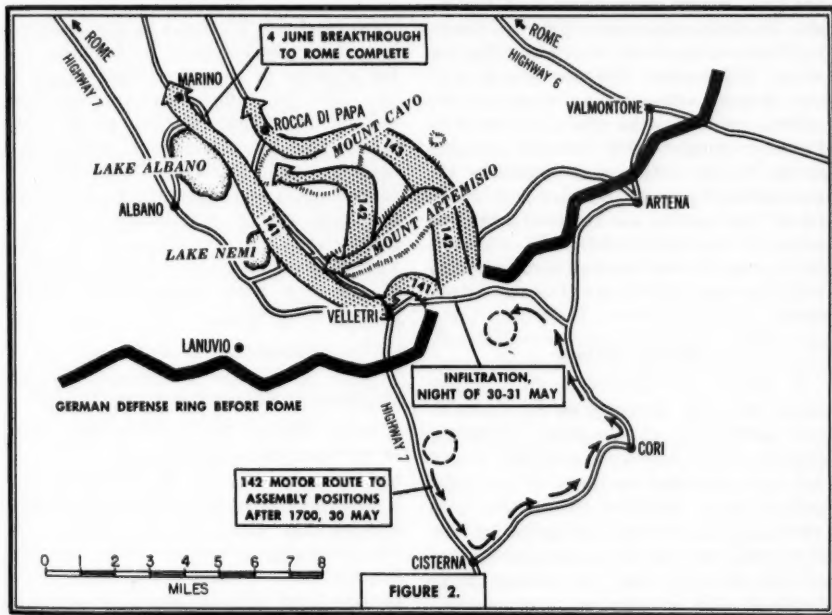
to the east and for the 143d Infantry to attack Velletri frontally. The 142d Infantry was, initially, in reserve. For several days the enemy held fast against repeatedly strong attacks. West of Velletri, the 34th and 45th were unable to make any decisive gains. However, the 141st Infantry on the east succeeded in severing the Velletri-Valmontone line and had swung around to the north. Here were grounds for a new plan which was twice submitted to higher headquarters before it

began (Figure 2). From the left of the infiltrating force came sounds of machine-gun fire where the 141st Infantry was busily engaging the enemy. The infiltrating force continued through the night to reach their objectives on Mount Artemisio and Mount Cavo. It was not until 0800 that the enemy realized that a force had infiltrated to the heights of the Mount Artemisio ridge, and even then the enemy was unaware of the strength of the infiltrating force. (Indications are that the

Germans estimated the force as from two companies to elements of two battalions.) By this time the 143d had secured the east end of Mount Artemisio and the 142d had pushed on to gain control of the entire hill mass. Fierce, but understrength, counterattacks were launched but were unsuccessful. Meanwhile the 141st continued its attack on Velletri which fell the next day. With the fall of Velletri and the capture

working on a trail. Mortar shells were carried by hand and metal ammunition boxes were strapped to the soldiers' backs as they climbed silently throughout the night, forbidden even to have a cartridge in the chamber of their guns.

One does not have to search too far to find other instances in World War II where regiments and major portions of divisions attacked by infiltration. One



of the Mount Artemisio hill mass, the position had been breached and the road to Rome was open.

The conduct of the attack was not accomplished without risks. Two regiments had been pulled back from a frontal assault of Velletri, to circle by side roads and ultimately to climb the 2,000-foot heights behind Velletri. The threat of harassment by snipers was ever present. However, even before the infiltration was completed, the division engineers were

writer stated: "The highest form of offensive operations that infantry can achieve is the infiltration attack, either silently or with artillery support."

Requirements

The requirements for infiltration basically are little different than those for other forms of maneuver. However, some essentials are apparent.

Planning

The first prerequisite to success is planning based on mission analysis and esti-

mates of the situation. In most cases the mission allows the commander a choice as to how the task will be performed. When the commander has such a choice, his estimate and decision may include a preferred form of maneuver. If infiltration promises the best chance for success, the commander's concept should so indicate to provide for unity of effort. Objectives and routes are selected based on a terrain analysis, enemy dispositions, and the desire to avoid engagement prior to reaching those areas from which the decisive attack is launched. The attack may consist of two parts—one, an attack by the infiltrating force—the other, an attack by forces in contact with forward elements of the enemy. Either may constitute the main attack force or the secondary attack force. Best results are achieved when the attack is coordinated fully and when the infiltrating force attacks simultaneously with or soon after the frontal attack force.

Mental Attitude

A second prerequisite is an offensive frame of mind. Too long we have considered infiltration as something to defend against. This defensive attitude is not uniquely American as many of the infiltrating units organized by the Japanese were employed primarily on defensive missions and were, in fact, sometimes called suicide units—a type of ground force *kamikaze* unit. Infiltration is not a technique which can be used solely as a defensive measure to slow up and harass an advancing enemy but also has an offensive role. A certain amount of moral preparation is indicated in that the force usually is flanked by enemy on all sides. This requires aggressive, confidence-inspiring leadership.

Alternative Course

Infiltration should be considered as an alternative course of action rather than as an aid which supplements direct attack.

Infiltration provides an opportunity to strike more decisive blows at the enemy than other forms of maneuver because the enemy may more easily be cut off from his source of logistical support, deprived of the opportunity to withdraw or reinforce, forced to fight in multiple directions, or suffer the early loss of his command and control installations.

Initiative

Successful infiltrations by sizable forces have been characterized by boldness and the exercise of initiative. This is not to say that the infiltrators were reckless, nor did they flaunt their maneuver in the face of the enemy. Individual activity was cautious and secretive. Individual resourcefulness and ingenuity were required to avoid enemy surveillance. Although great risks to personnel and to the units were involved, in many cases the audacity of the plan itself compensated for the gamble involved.

Patrolling Proficiency

High on the list of military requirements is proficiency in patrolling. This is a must whether the force is half squad or division size. With this comes the ability to employ stealth, the ability to neutralize enemy sentries quickly and silently, and perhaps, above all, the ability to select those approach routes which will permit the force to bypass the enemy or to deviate from original routes in order to accomplish the mission. The key to successful infiltration by a large force may be the ability to locate a gap in the enemy's surveillance capability. This often may be achieved through the action of an alert patrol. In fact, such an accomplishment by a patrol of the 2d Gurkhas in North Africa in April 1943 permitted the 5th Indian Brigade to infiltrate and secure an objective. Thus prolonged and costly assault against a heavily defended hill mass was turned into a one-night battle solely by infiltration tactics.

Physical Condition

Physical conditioning goes hand in hand with training. Passage through difficult terrain such as mountains or swamps, and through enemy positions dictate a requirement for the infiltrating force to carry its own logistical support or to live off the land. A North Korean division, which infiltrated the lines in the Korean conflict, relied on the countryside for food and on captured stocks for ammunition. If the characteristics of the weapons of opposing forces are not compatible, then the infiltrating force must carry on its back the required supplies. To compensate for possible shortages in normal combat support, the infiltrators must be equipped with substantial numbers of automatic weapons, mortars, and hand-carried antitank weapons. Although long-range artillery fires will be available, the requirements for communications to fire support units may require radios to be man-packed. The requirement to carry several days' supplies plus some equipment, usually vehicle mounted, dictates that soldiers be thoroughly hardened to the rigors of carrying heavy loads over difficult terrain.

Timing and Security

Timing is another consideration of special interest. Successful passage through the enemy position is best accomplished during periods of poor visibility, for example, at night or during heavy rains or snow. If the maneuver is employed repeatedly, the exact time of commencement should be varied. However, infiltrations in strength or to deep objectives usually must be started in the early hours of darkness. With the development of electronic detection devices, routes must be selected through uncovered defiles, dead spaces in enemy coverage, or electronic countermeasures must neutralize the enemy's detection capability.

Security during the infiltration must be provided to the maximum extent possible. Friendly patrols and artillery fires may

be employed to prevent enemy reconnaissance patrols from determining the size and objectives of the infiltrators.

Nuclear War

In a nuclear war, infiltration may become the favored form of maneuver. The dispersion of units in operations under nuclear conditions or the threat thereof favors the use of infiltration of enemy positions as a form of maneuver. The vulnerability of friendly maneuvering forces to nuclear weapons is reduced by infiltration in that small groups rarely will be considered as remunerative targets, and because the enemy cannot employ nuclear weapons against infiltrating groups without endangering his own troops. Extreme dispersion will permit the infiltrator to use his ground or air vehicles in the infiltration. This increases his mobility capability and will permit him to mass quickly for attack and as quickly disperse. Finally, the dispersion of enemy forces may permit their piecemeal destruction by infiltrating forces without the employment of nuclear fires.

Subsidiary missions can be accomplished by infiltration and contribute to the success of large units in combat. Forces may infiltrate to conduct raids, block or control key communications nets, destroy bridges, effect barriers, harass enemy logistical operations, cut wire communications, seize terrain to facilitate future operations, conduct feints or demonstrations for deception, or engage in any of a number of intelligence collection activities. Particularly significant is its application to target acquisition when a limited allocation of nuclear weapons or the desire to limit destruction in friendly territory requires accurate target intelligence. Infiltrating forces may provide this target information with great accuracy.

Another potential for infiltrating groups is the location, discovery, and destruction of enemy nuclear delivery means. This may be accomplished as an extension of

target acquisition by bringing our own fires to bear on the enemy delivery means or the infiltrating group may destroy the target by attack.

Infiltration on the nuclear battlefield need not be limited to foot movements, although terrain and enemy dispositions may dictate the selection of routes which preclude other ground approaches. In many cases the infiltrating force will be able to include light vehicles and some armor in their organization. The inclusion of transportation means enhances the combat power of the force through the provision of additional and heavier fire support, longer ranging communications, and increased ammunition support. Army aviation provides another means to increase the mobility of the infiltrating force. It may be used to transport the infiltrating force to locations within the enemy held area—not for the purpose of establishing an airhead, but to permit final grouping for the decisive attack. Army aviation may be used in the attack by the infiltrating force to provide tactical mobility (for reserves and other maneuver forces), and in target acquisition and fire direction. Army aviation also may be used in logistical support missions to permit greater range of operations for the infiltrating forces and to evacuate casualties.

Conclusion

Infiltration as a form of offensive maneuver was employed successfully by large units during World War II and Korea. It is considered that infiltration may, in many cases in a nuclear war, constitute the preferred form of maneuver at field army, corps, division, and battle group level. This may be occasioned by the greater dispersion of forces and the requirement to prevent the formation of remunerative nuclear targets for the enemy.

Among the prerequisites for successful infiltration are: thorough planning based on mission analysis, terrain study, and enemy dispositions; an offensive spirit characterized by boldness; training and physical hardness; and periods of poor visibility or under conditions where the enemy's surveillance capability is neutralized.

Infiltration should be considered as an alternative course of action rather than merely an aid which supplements direct attack. The concept and definition of infiltration as a form of maneuver should be: an offensive maneuver which deploys strong forces in the enemy rear for the execution of decisive tasks while exposing only small forces to enemy fires during the passage through enemy defenses.

If you will study the entire pattern of Communist aggression since the cold war began, it has been one of stirring up local crises. And it wasn't a pushbutton that stopped them cold in their tracks. It was the ground combat soldier. He still is, as he always has been, the mailed fist of diplomacy; the warning hand against aggression.

It is no coincidence that in the history of the world, no battle for democracy was ever won without him. And history has a curious way of repeating itself.

General Bruce C. Clarke

DEFENSIVE-OFFENSIVE

Captain John J. McCuen, *Armor*
Student, Columbia University, New York

IT WAS the spring of 1241 A. D., and the Mongol Golden Horde was ravaging Eastern Europe. This fearsome force was commanded by Batu, grandson of Genghis Khan, and wily, old Subotai, one of the great Khan's top generals. During March the Golden Horde had utterly destroyed at least three strong European armies. All that was left to save Europe was the powerful Magyar host of Hungary, a hundred thousand strong, under King Béla IV.

Béla crossed the Danube to do battle at the beginning of April. The three divisions of Mongols did not attack but retreated slowly before the Magyars. Meanwhile, the Mongol commanders left their army and reconnoitered the site they had chosen for the battle—the plain of Mohi. According to Harold Lamb in his book, *Genghis Khan*:

The Mongols retreated across the river, leaving intact a wide stone bridge, and pushing into the brush on the far side for some five miles. Blindly the host of Béla followed, and 'camped in the plain of Mohi.' . . .

During the night:

Subotai took command of the Mongol right, led it in a wide circle back to the river where he had observed a ford.

At dawn:

Batu's advance moved back toward the bridge, surprised and annihilated the de-

tachment guarding it. His main forces were thrown across. . . . The Mongols surged steadily into the disordered array of their foes. . . . The battle was stubborn and unbroken until near mid-day. Then Subotai finished his flank movement, and appeared behind Béla's army. The Mongol ranks parted in the west, leaving open the road through the gorge by which the host of Béla had advanced to the plain. The Hungarians fled, and were pursued at leisure. For two days' journey the bodies of Europeans strewn the roads. Forty thousand had fallen.

The Battle of Mohi was a brilliantly decisive offensive victory, yet the Mongols used what today would be described as defensive—actually retrograde—tactics. Many of the Mongol victories were won with inferior forces using similar operations. As a matter of fact, these tactics have won many of history's greatest victories—Hannibal's defeats of the Romans at Trebbia, Lake Trasimeno, and Cannae; Frederick's victory at Rossbach; Napoleon's Austerlitz; and the Hindenburg-Ludendorff annihilation of the Russian Narev Army at Tannenberg. On the highly fluid, modern battlefield, where holding of specific terrain has lost much of its importance, operations from a defensive posture could be just as decisive. For this reason it is recommended that the defensive-offensive be specifically included along with the attack as an offensive concept.

The defensive-offensive form of maneuver must be integrated effectively into service regulations, service school instruction, and training exercises if it is to take its place as a major instrument of decision

The defensive-offensive will be considered in relation to concept, employment possibilities, advantages and disadvantages, and doctrinal changes.

Concept

As a basis of discussion, it is desirable to consider briefly the concept of the defensive-offensive. As indicated, this concept is certainly not a new one, and it has been called such names as "retour offensif" (French writers), "counteroffensive" (Hans Delbrück), "baited offensive" (Liddell Hart), and "offensive-counter-offensive" (Major General Fuller). Irrespective of name, however, it is the combination of defensive and retrograde actions with the counterattack to destroy the enemy.

The defensive-offensive can be effective in many forms, as noted by Major General J. F. C. Fuller in *Armored Warfare*:

... an advance to engage the enemy, a withdrawal to persuade him to advance against anti-tank defenses, and then again a forward movement to strike him before he can reorganize. Such was William the Conqueror's plan at the battle of Hastings.

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Or, as Field Marshal Erwin Rommel stated in *The Rommel Papers*:

The farther the enemy advances and the longer his supply route becomes, the more troops he must leave behind, if he is to maintain himself. . . . The retreating army always has strength concentrated. Hence the moment must eventually come when the retreating force is locally superior to its enemy. . . . It can turn and strike at the advancing enemy force, and destroy it. . . .

It joins the decisiveness, initiative, and surprise of the offense to the deception, dispersion, and strength of the defense to form an exceedingly powerful instrument of battle.

Employment Possibilities

There may be many situations on the battlefield—particularly the nuclear battlefield—where, even with parity or superiority of strength, the attack is not the most advantageous form of maneuver. Obviously, the defense is always available; however, it is primarily designed to stop or delay the enemy—a vitally necessary form of battle but of itself indecisive. The problem situations are those in which a force desires to carry out the offensive mission of destroying the enemy without exposing itself to dangerous concentrations, losses, vulnerabilities, or a particular enemy counteraction.

Possibility of springing a trap.—From time to time on the battlefield will appear a bullish opponent who considers the attack as the only acceptable form of maneuver. Military history is full of the stories of such attack advocates who have literally attacked themselves to destruction. Bear in mind Von Schlieffen's famous comment about attack advocate Terentius Varro and defensive-offensive advocate Hannibal at Cannae.

To obtain a perfect Cannae it is necessary to have a Hannibal on one side, a Terentius Varro on the other. Both of

them, each in his own way, contribute to the great achievement.

When meeting a "Terentius Varro" in battle, it may be best to follow Hannibal's example by setting a defensive-offensive trap to destroy him.

Near parity of combat power.—As in the case of the Mongols at Mohi, and many other times in their campaigns for world domination, a force often will find itself on the battlefield against an opponent who has near parity of combat power. Consideration of the mission, mobility, and the mental factors may still favor the attack in such situations of doubtful friendly superiority. Nevertheless, the specter of Terentius Varro haunts the battlefield, for the attack is not the universal panacea. The defensive-offensive—in the form of an initial defense or retrograde followed by a powerful counterpunch and exploitation—may be just as decisive as the attack in destroying the enemy without the corresponding risks.

Marked inferiority of combat power.—Particularly at the initiation of hostilities, one side or the other may have a marked inferiority of combat power such that even effective defense would be difficult. The defensive-offensive with initial delaying tactics often is the most effective means of hoarding one's own combat power while at the same time improving the ratio by destroying that of the enemy. This would be an offensively oriented retrograde movement aimed at trading space for enemy combat power rather than time.

One of the great bonus effects of such an operation is that it emphasizes initiative and offensive spirit among one's own ranks. The Serbs brilliantly conducted such an operation against a superior invading Austro-Hungarian Army in the late fall of 1914. Although the Serbs conducted a calculated delaying action of over 150 miles through mountainous terrain, they counterattacked and ejected the Austrians from their nation, inflicting 226,000

casualties to their own 132,000. To the free nations, who often may find themselves in such a position, the defensive-offensive could be tremendously effective.

Strong enemy defensive zone.—Even on the nuclear battlefield an enemy could build a strong, deep defensive zone which could not be breached without prohibitive cost. Such a zone, based on large numbers of small, dispersed, dug-in (or mobile) units, would be invulnerable to any but considerable amounts of nuclear firepower. One's own vulnerability to nuclear strikes and conventional fires would make it very costly to breach such a zone by concentration. Obviously, attack of such a defense by vertical or ground turning movement would be feasible, but the sizable forces and means required are not always available. Yet the defensive-offensive presents another and most intriguing solution which German Field Marshal Ritter von Leeb in *Defense* suggests should have been adopted in the face of the tremendous defensive fronts of World War I.

There is an opinion according to which a dynamic operative conduct of the war in the west would have preserved us from a war of position and could have brought a favorable decision. General von Falkenhayn wanted also to retreat still further with the German right wing and thus win time and space for an outflanking attack. Since this was not done, we cannot see whether this daring proposition would have led to a decisive or only to a local success.

A withdrawal from the trench system would have offered an opportunity to restore the war of movement by counterattack against more vulnerable enemy dispositions. This maneuver could be highly effective on the modern battlefield rather than absorbing heavy losses in attack against a powerful defensive zone.

Infeasibility of attack.—Sometimes there will be situations where attack will be militarily unfeasible. For example, in

the Indochinese War, the French found that it was impossible to attack and destroy major Communist Vietminh forces. The Communists, not considering specific terrain important, simply refused to stand and fight. As a result the French adopted the tactics of enticing the Vietminh to attack and then either trapping them with airborne troops or extracting heavy casualties with firepower. These techniques proved highly successful in battles at Nghia Lo (October 1951), Hoa Binh (November 1951 to March 1952), and Na-San (October 1952 to March 1953). They failed at Dien Bien Phu (December 1953 to June 1954) because the French got out beyond the range of effective support. Nevertheless, in very fluid or guerrilla warfare these tactics could be effective against an enemy who will not allow himself to be engaged by a conventional attack.

Political restraints.—At times political restraints will prevent attack: for example, as along a political restraining line or boundary. Modern armies often find themselves in such positions where from a defensive posture they must be prepared instantly to destroy a potential enemy. Depending on the political and military objectives, such deployments may be designed either to deter or incite attack. Either way the defensive-offensive can allow rapid seizure of the initiative and destruction of the enemy without the stigma of being branded the aggressor.

Adjunct to attack.—The defensive-offensive obviously is not a substitute for the attack which in many situations is the only applicable form of maneuver. Nevertheless, it is a powerful adjunct to the attack, for in other situations it can well prove to be a more feasible means of destroying the enemy.

The defensive-offensive has strong advantages which, in the employment possibilities just discussed, often can make it the most feasible course of action. Like any other form of maneuver it also has

disadvantages which must be considered carefully before employing it in battle. The advantages and disadvantages must be weighed to determine its applicability to each situation.

Advantages

Surprise.—The defensive-offensive offers excellent opportunities for surprise, for the mere initial adoption of the defense or retrograde is a deception as to the offensive aim of the operation. This will be particularly true if the enemy is attack-minded and considers the defense or retrograde as a logical result of his attack. At the Battle of Mohi the Mongols completely achieved surprise against the Hungarians and thus achieved the decisive results. German General Waldemar Erfurth points out this factor of the defensive-offensive in his book *Surprise*:

... the counter-attack should provide a second opportunity to surprise the enemy (the first surprise having been the timely disentangling from the enemy). This surprise should be accomplished with due regard to time and terrain as well as to the numbers which are required for making the counter-blow sufficiently powerful.

Erfurth, of course, is discussing use of an initial retrograde movement. Actually, greater surprise effect may be accomplished if the enemy is forced to maintain pressure as he advances, for his attention tends to be directed more to his own attack than to a possible counter-attack. With effective deception, surprise can be a major product of the defensive-offensive.

Favorable terrain.—As intimated above by Erfurth, the defensive-offensive allows choice of the most favorable terrain for counterattack or ambush. Remember that Batu and Subotai carefully chose the plain of Mohi to destroy the Magyar host, and Hannibal the shores of Lake Trasimeno to destroy the Roman legions. Artful use of deception, pressure, and retrograde ac-

tions can canalize the enemy into a "killing ground" most favorable to the friendly force and most damaging to the enemy. This is a prime advantage of the defensive-offensive.

Poor enemy defensive deployment.—If the enemy is in a good deployment for attack, he usually, is in a poor deployment for defense. His formation lacks depth, and his flanks and rear are vulnerable. For these reasons the counterattack or ambush of the defensive-offensive often will catch him in the worst possible posture to defend against it and will facilitate later exploitation.

Frequent vulnerable concentration by the enemy.—For successful attack, frequently the enemy must concentrate. These concentrations, often at predictable places, can be encouraged by skillful use of defensive positions, barriers, and deception. They can be detected by prelocated intelligence means and can be destroyed by on-call nuclear or conventional fires. In addition, the attacking enemy is especially vulnerable because of his inability to protect himself with effective cover and concealment. The defensive-offensive usually will catch the enemy when he is most vulnerable to nuclear and conventional firepower.

Possibility of decisive enemy entrapment.—As discussed previously under employment possibilities, the defensive-offensive presents excellent opportunities for organizing and springing a decisive trap. History is full of such successful operations at lower echelons; however, precedents such as Cannae and Tannenberg well attest to the fact that it also can be done on a grand scale. In effect, the enemy sometimes can be enticed to attack into a stationary or slowly moving double envelopment which can be snapped shut behind him. It is not always easy to get the enemy to oblige, but entrapment executed through the defensive-offensive can reap very decisive results.

Friendly invulnerability.—One of the great advantages of the defensive-offensive is that it employs initial defensive dispersion, cover, and deployment. This is an important consideration, particularly on the nuclear battlefield where concentration can mean destruction. Also, losses are reduced because of the elimination of assaults against prepared defenses and initial exposure of flanks. In short, the defensive-offensive offers opportunity for great gain at bargain cost.

Disadvantages

Possible indecisiveness against terrain objectives.—Many times the defensive-offensive will not be immediately decisive if the goal is to seize terrain. Obviously, initial defense or retrograde action does not seize ground. In such situations the defensive-offensive will only do the job if the destruction of enemy combat power is sufficient to allow the follow-up exploitation to seize the terrain. In many instances this is not only feasible but the least costly method of seizing the terrain. Nevertheless, often such factors as enemy capabilities and time may make attack the only acceptable form of maneuver.

Loss of terrain.—The defensive-offensive may require loss of terrain. There are many situations in which specific terrain must be held for military or political reasons. Nevertheless, there is a danger of becoming too tied to holding terrain. Discussing this attitude in World War I, Erfurth comments:

The defender did not fight, as he should have done, for victory and for the annihilation of the opponent, but merely for his positions. . . . The strange dogma that every position, however unnecessary or unfavorable, should be defended to the very last caused many unnecessary losses and led to many belated evacuations. Heavy fighting for a locality often degenerated into a contest for mere prestige. In this case, sentiment interferes with

reason and prevents arriving at appropriate decisions.

In any event, with the obvious impossibility of occupying specific ground on the nuclear battlefield, terrain will lose much of its importance. Nevertheless, in evaluating the feasibility of the defensive-offensive in any situation, the value of the terrain loss must be weighed against the probable damage to the enemy.

Loss of initiative.—In the defensive-offensive there is some danger of losing the initiative. Nevertheless, regardless of some misconceptions, "initiative" is not synonymous with "attack." If the defensive-offensive is to be effective in destroying the enemy, control of the battle must be maintained—whether the enemy knows it or not. Considering that the enemy can choose the time, place, direction, and strength to initiate action, this control will require considerable skill in employing deception, obstacles, defensive action, retrograde, ambush, and counterattack. Unquestionably, therefore, tactical skill is the only insurance against loss of initiative in the defensive-offensive.

Detrimental effect on morale.—Any action involving the defense or retrograde may have a detrimental effect on morale. The disadvantage can be eliminated, however, by inculcating the offensive spirit into troops during training with the defensive-offensive. With such a spirit, morale should be no problem with trained troops. With troops not trained in this type of operation, however, careful orientation and leadership will be required.

Failure of enemy to attack.—Obviously, the defensive-offensive will not work if the enemy does not attack. Nevertheless, if the defensive-offensive is particularly desirable, the enemy can be strongly baited. As Sun Tzu put it in *The Art of War*:

If we wish to fight, the enemy can be forced to an engagement even though he

be sheltered behind a high rampart and a deep ditch. All we need to do is to attack some other place which he will be obliged to relieve.

If the enemy still remains resolute in his decision to defend, attack is the only solution—but with care, for his motive may be guile rather than weakness.

In those situations where the possibility exists for use of the defensive-offensive, the advantages and disadvantages must be balanced. Surprise, favorable terrain, poor enemy defensive deployment, frequent vulnerable concentration by the enemy, possibility of decisive enemy entrapment, and friendly invulnerability weigh heavily among the advantages. The disadvantages of possible indecisiveness against terrain objectives, loss of terrain, loss of initiative, detrimental effect on morale, and failure of the enemy to attack are very real but can be minimized by skillful conduct of the defensive-offensive.

Doctrinal Changes

The major doctrinal change required is the specific inclusion of the defensive-offensive within offensive doctrine. Although the point as to whether it is an offensive or defensive concept may seem academic, this is not the case. The tactician must rid his thinking of the idea that use of initial defensive or retrograde operations is a sign of weakness and should be employed only when it is forced on him by the enemy. For this reason it is important that the defensive-offensive be considered as an offensive concept.

Actually, it is perfectly natural that the defensive-offensive should be considered an offensive concept, for its purpose, to destroy the enemy, is coordinate with that of the offense.

Clausewitz fairly well clarifies the issue with his statement of the offensive and defensive aims:

The aim of the defensive is to hold; that of the offensive to win. . . . One should

make use of the defensive, which has a negative aim, only when one must resort to it because of weakness; but it must be abandoned so soon as one is strong enough to conceive the positive aim.

The defensive-offensive has a positive aim.

Having cleared a niche for it in offensive doctrine, the defensive-offensive should be clearly described in the service regulations. Emphasis should be made on its decisiveness when properly exploited and on the feasibility of retaining the initiative. The employment possibilities with the advantages and disadvantages should be discussed. It should be pointed out that although its tactics may be similar to the mobile defense, it has the major difference that its purpose is primarily destroying the enemy. Stress should be laid on the fact that deception, barriers, intelligence, preplanned fires, and flexible counterattack plans are the foundation of successful defensive-offensive operations.

The defensive-offensive also must be effectively integrated into service school instruction and training exercises. It should be remembered that doctrine is not only derived from service regulations but also

from thinking and exercises developed in schools and experience gained in training.

Conclusion

As evidenced by the Battle of Mohi in 1241, history provides many examples of the power of the defensive-offensive. Situations which favor its use on the battlefield include those in which there is a possibility of springing a trap, near parity of combat power, marked inferiority of combat power, a strong enemy defensive zone, an infeasibility of attack, or a political restraint. Its success is favored by opportunities for surprise, favorable terrain, poor enemy defensive deployment, frequent vulnerable concentration by the enemy, decisive enemy entrapment, and by friendly invulnerability. The disadvantages of possible indecisiveness against terrain objectives, loss of terrain, loss of initiative, detrimental effect on morale, and failure of the enemy to attack must be considered carefully, but often they can be reduced in their impact by training and skillful conduct of operations.

Included in service regulations, school instruction, and training exercises, the defensive-offensive can become a full-fledged offensive tool.

... this military strength, to be effective, must be both tridimensional and balanced—an Army-Navy-Air Force team capable of meeting any likely situation. Balanced strength means flexible, proportioned strength, including the various forms of military force required to deter or to fight small wars as well as big wars, and to fight, if necessary, any place and any time, with or without atomic weapons. Balanced strength includes the means to defeat local aggression promptly before it spreads into general war.

General Maxwell D. Taylor

THE TIGER AND THE MAN

Major General Myong Jae Lee and
Lieutenant Colonel Robert M. Walker



This article reflects the views of Major General Myong Jae Lee, Republic of Korea Army, and a graduate of the 1958-59 Regular Course of USA CGSC, as expressed to Lieutenant Colonel Robert M. Walker, Artillery, former Special Sections Editor of the MILITARY REVIEW.—Editor.

WHEN a man sees that he is going to get into a fight with another man, he can hold up his hand and say, "Before we fight, let us first decide the rules under which we will fight. Will we use fists, or knives, or guns, or clubs?" After the two men decide on the rules they will use, they fight, and one man wins and one man loses.

But when a man meets a tiger, this same thing is not true. If a man holds up his hand to a tiger and says, "Before we

fight, let us decide the rules we will use," the tiger will bite his hand off while he is talking.

The present "cold war" between the West and the Communists of the Soviet Colonial Empire is a good deal like the man and the tiger. The Communists are represented by the tiger. The nations that comprise the circle of Western containment around the Communist countries represent the man holding up the hand before the tiger.

Starting with the Republic of Korea and Japan in the North Pacific, the circle includes the Philippines and Taiwan which are also bases of Free World military might. Across lower Asia are Thailand and Pakistan and the friendly states of the Middle East. The ring then swings around through the great powers of continental Europe up to Great Britain and Norway. It is especially significant that

Smaller nations of the containment perimeter need help in developing economic stability and sufficiency in military production if they are to hold back the Communist tiger and withstand the threat of communism

the only foothold the West can boast on the entire eastern mainland coast of Asia is South Korea.

No Ocean Barrier

The Army of the Republic of Korea faces communism directly. There is no great ocean barrier between the South Korean and the Communist forces—only a

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narrow demilitarized zone. It is logical to assume that if a major war occurs between the East and the West, and regardless of whether nuclear weapons are used, one of the first objectives of Communist strategy will be to obliterate the Western stronghold on the south end of the Korean Peninsula; that is, to wipe out the ROK military forces.

The Republic of Korea has a well-trained, battle-tryed, and combat-ready army, one of the largest on the side of the Free World. Unfortunately, however, the Korean Republic is not able to supply her soldiers with the arms, transportation, and ammunition they will need to withstand the assault of the Communist tiger from the north and across the Yalu. Thus a major problem appears in the comparison of the short distance separating the ROK Army from the Communists with the great distance separating the South Korean nation from the United States, the great arsenal of democracy. How will the armies of the various Free World nations in general, and the Republic of Korea in particular, be supplied in a major war between the great opposing powers?

In the war of 1950-53, the United Nations forces on Korean soil were supported by surface transportation, with a minor portion of their supplies being flown in by cargo aircraft. But would this be possible in a future major war? It appears that if the Soviet Union is directly concerned and participates in the conflict, support of the widely dispersed armies of the Free World by surface transportation will be far from feasible. Certainly, the Soviet submarine fleet will be sufficient seriously to impede any such flow of supplies as has occurred in the past, especially at the start of hostilities.

While it is possible, even probable, that the great naval and airpower of the United States and the other allied Western Powers eventually will triumph over the Red submarine menace, such triumph

may be too late to assure the logistical support these armies will require. So far as Korea is concerned, mass attacks undoubtedly will come down from the north. For the ROK Army to hold its position against these attacks on the vitally needed foothold on the Asian continent with only the supplies and equipment immediately at hand will be, to say the least, difficult.

Stockpiling Unsound

One way in which the Free World could ensure that the local allied military forces are supported in the event of such a conflict is to establish an adequate stock of reserve supplies *in these areas*. Such supplies would include trucks, arms, fuel, ammunition, and other materials of war. This reserve would have to be quite large—sufficient to last until normal surface routes could be guaranteed. However, it is not certain that such a plan for worldwide stockpiling is economically sound. It is very possible that even the great wealth and productivity of the United States and the other free nations would be unable to bear such a burden.

In view of this it is vitally necessary that all nations which extend the power of the Free World to the threshold of communism be encouraged to make themselves as nearly as possible independent of external supply sources, particularly for war materials.

If the productive capacity of these nations can be increased to the point where they will be able to supply all, or even a part, of their own trucks, weapons, and military supplies in general, then much less stockpiling will be necessary. In addition, the great drain on the economies of the other Free World nations will be reduced. More than this, it will provide a considerable assurance that the Communists will not be able to subvert these nations from within. Strong and prosperous nations, countries in which the people are gainfully employed and have plenty to

eat, are not apt to fall easy prey to the Communist tiger.

However, the mere building of factories with money supplied by other nations is not a complete solution to this requirement. To be independent of supply from other nations, the raw materials these factories will need must come from internal sources. This is difficult for the Republic of Korea since, when the nation was divided in 1953, most of the mineral resources went with the north, while the agrarian south has comparatively little in the way of known and unexploited reserves of mineral ores.

Scientific Exploration

A first long step for all such nations, then, would be a complete scientific exploration of their areas to determine what hitherto unknown deposits of minerals may be present. Once these have been found, then factories can be built to utilize these materials locally. Underdeveloped nations, like South Korea, will need both technical and material assistance in accomplishing this. At the same time, it is very necessary that their economies, principally agrarian, be helped to arrive at a firm and sound footing.

Much has already been done, of course, by way of placing the economy of the Republic of Korea on a solid basis. In the six years of operation of the United Nations reconstruction program, financed by 37 nations, 140 million dollars were spent on about 4,800 projects. They have ranged from help for a small businessman getting his store back into operation to the building of a great cement plant that produces approximately 30 percent of the nation's needs. But much remains to be accomplished if the ROK Army is to fight a protracted conflict without receiving a tremendous amount of supplies from an external source. As stated before, external supply to the extent necessary in a major shooting war is not likely to be possible.

The people of the Republic of Korea have shown themselves to be quick to learn, hard working, and anxious to progress. They have demonstrated that they are willing to fight, to death if necessary. But, like any other people who treasure their freedom, Koreans would rather live, to fight and to work for the democratic way of life. The Republic of Korea has the manpower—all she needs is the place to put that manpower to work in the best way to ensure that she and the rest of the Free World may be able to resist the Communist menace.

The secondary goal of making the nations of the containment perimeter self-sufficient to strengthen their economies is important, but even more important is the critical necessity for reducing the dependence of all the "outpost" nations' military effort on surface transportation in case of a global war. The assistance required to aid them in increasing their productive capacity to meet this need appears to be not only the cheapest but, in the long run, the most effective in assuring that the vital supplies of war may be on hand when they are needed.

The development of these productive capacities is not likely to assure that *all* of the armies' required supplies can be provided locally. It may well be, for example, that no major oil deposits can be found in one of these nations, and that the nation will always have to be pro-

vided by shipment from over the seas. But if a major source of petroleum were to be found in a country, and with a minimum of external assistance this country could erect an oil refinery, the Free World would have a readymade stockpile of petroleum products in that area. This is true of every area and every other such product in all the places where the Free World has established its bastions on the Communist perimeter.

Conclusion

There are, of course, certain dangers in such a long-range plan. It might be that a war would start before the principal benefits could be realized, and all the effort and expense would be wasted. However, if the program is initiated immediately and is well-developed before such a war occurs, it will not be necessary to hold the Communist tiger back with emergency measures until logistical matters can be arranged.

The smaller nations of the containment perimeter are generally underdeveloped, and of diminished effectiveness because of the problems involved in providing logistical support for them. But, with help in developing themselves toward economic stability and sufficiency in military production, they can do much more to assure that the upheld hand of the Free World will not be bitten off by the Communist tiger because of a lack of the supplies that a modern army requires.

MOVING?

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ARMOR ANTICIPATES ADVERSE CONDITIONS

Colonel Hugh R. O'Farrell, *Armor*, and
Lieutenant Colonel Howard W. Darrow, *Artillery*

This article is in consonance with current doctrine as taught at the United States Army Command and General Staff College.—Editor.

WARFARE has always been conducted under conditions of unfavorable environment. Although to varying degrees, environment has affected both sides in battle. Victory usually has gone to that commander who has employed his forces so as to maximize his own capabilities and minimize the limitations imposed by environment. The complex and extensive operational environments of the nuclear age have further complicated the battlefield, intensifying the effect of less than ideal conditions. The forms of war and scales of nuclear usage on the modern battlefield confront the commander today with an unprecedented challenge in the effective employment of his forces. As an element of that force, armor's characteristics of mobility, firepower, protection, and shock action are most advantageous in overcoming the unfavorable conditions to a marked degree.

Military historians, exploiting its dramatic appeal, have emphasized the classic employment of armor to such an extent that some people are prone to consider ideal environments as a prerequisite for the effective employment of armor. This myth must be exploded. Armor is a powerful combined-arms team capable of operating under all conditions. On the battlefield of tomorrow, these conditions will

probably not be ideal; but optimum employment of armor under adverse conditions must be recognized and understood. As will be brought out later in this article, the U. S. Army Command and General Staff College is stressing, in both doctrine and instruction, the employment of armor under adverse conditions. This emphasis must be adopted throughout the Army school system and field commands if we are to exploit the full potential of armor.

As used in this discussion, the term "armor" is defined as *tank, armored cavalry type reconnaissance and security elements, armored infantry, artillery, engineer, and mobile service support units required to form an integrated and balanced fighting force for the conduct of mounted warfare, the nucleus of which is tanks.** Armor may be employed as a division size force and in both smaller or larger armor formations provided they are composed of the vital ingredients listed above.

Armor as a combined-arms entity must, in the face of ever-widening nuclear environment, retain the capability to attack, disrupt, disorganize, and destroy enemy forces. The final definitive requirements for success on the battlefield have not changed: the enemy must be destroyed or forced to surrender. Hence only the environment and the materiel have altered. But, with the advent of nuclear warfare, that alteration is vast, extensive, and like

* Army Regulations 320-5, *Dictionary of United States Army Terms*, November 1958.

Employment of armor requires the commander to project his thinking boldly into the future. He must recognize not only the risks inherent in various courses of action, but also the great advantages that will accrue

nothing man has yet confronted in military operations.

Historical Perspective

Realizing that the past and present are but prologues to the future, it behooves the military student to glance for a moment at two historical examples of military operations. Napoleon's defeat in the rugged environment of Russia serves as a stark reminder of the impact of operational environments on warfare of the past. The lack of planning and adequate preparation for the logistical support of his forces, coupled with the "scorched earth policy" of the Russians, led to Napoleon's defeat. Adequate logistical support would have had a significant effect on the outcome of this historic campaign.

Nearer to our time, the impact of this same environment on German operations

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Lieutenant Colonel Howard W. Darrow entered the service in 1940 and was commissioned in 1942. He served in Europe during World War II with the 66th Infantry Division. He was graduated from the Advanced Course of the US Army Artillery School in 1948, and subsequently served with the 24th Corps and the US Military Advisory Group to The Republic of Korea until 1950. A graduate of the U. S. Army Command and General Staff College in 1951, he served on the staff and faculty of the US Army Artillery and Missile School until 1954. He went to Europe in 1954, where he served with the 2d Armored Division, commanding the 3d Armored Field Artillery Battalion. He was assigned to the faculty of the USA CGSC in 1957.

in Russia demonstrated again that, without adequate planning and preparation, even though employing modern technology (including large armored formations), victory cannot be achieved. An analysis of these two illustrations makes it clearly evident that victory comes to those who plan on, and prepare to overcome, the operational difficulties of adverse conditions.

The next step requires a consideration of the wide range of environments of the nuclear age and an identification of adverse conditions.

Identifying Less Than Ideal Conditions

In considering the wide spectrum of operational environments characteristic of modern warfare, the requirements for the use of armor under less than ideal conditions should be analyzed in the light of both long established principles of military operations and the impact of modern scientific and technological developments. As will be pointed out later, this will reveal that what may appear to be the exceptional, the unique, the unusual, the abnormal, will in reality be the normal or most frequent type of operational condition.

The following discussion of adverse conditions for the employment of armor will be limited to those derived from terrain, weather, and reduced visibility. "Terrain" includes here variations in altitude, zonal latitude, geological conformations, drainage systems, and manmade works, and the interrelationships of temperature which produce the arctic and tropic conditions. The wide variance of weather and climatic conditions must also be considered, and here again, the significance of terrain must be analyzed. Otherwise the picture is only partially applicable to armor operations and, therefore, misleading. It will be necessary, next, to relate visibility as a specific effect to the employment of armor under these conditions. This concerns operations under conditions existing

during hours of darkness as well as reduced visibility due to other causes.

It is recognized that the conditions derived from terrain, weather, and reduced visibility should be related to the enemy's capability, logistical support considerations, forms of war, and scale of nuclear usage. However, an analysis of this relation would entail a comprehensive and definitive evaluation of the specific situa-

The results attainable here must be the goal toward which the commander strives in applying armor under conditions that are less than ideal. The commander who has to decide how best to use armor, that is, how best to achieve the greatest potential combat effectiveness while reducing to a minimum the disadvantages of the environment, must evaluate the less than ideal conditions of the battlefield. This



Tank operations in heavy snow

tions portraying the conditions of weather, terrain, and reduced visibility. Therefore, emphasis is placed only on the planning and preparation required to minimize the effects of these adverse conditions.

Terrain

The most effective application of armor combat power is, of course, achieved on the ideal battlefield: rolling terrain, adequate roads and bridges, good trafficability, and no major obstacles or barriers.

evaluation must include mountainous terrain, heavily compartmentalized areas, deeply cut ravines and riverways, frozen arctic lands, jungles, reservoirs, canals, walls, and built-up areas. Appropriate use of field expedients, imagination, and understanding in executing the decision will achieve the maximum effectiveness of armor.

In conducting operations in difficult terrain, key terrain features, observation and

fields of fire, obstacles, concealment and cover, and avenues of approach (including road net) become increasingly important in planning. Normally, the more difficult the terrain, the more detailed the planning required. To reduce the effects of difficult terrain in any area of operations, careful consideration must be given to the increased requirements for maintenance, logistical support, and engineer support. Communications will become an increasingly difficult problem and maximum use must be made of field expedients to assist in the movement of armored vehicles.

Maintenance and parts requirements on the track and suspension system will increase as a result of traversing sharp rocks, boulders, ditches, and gullies in rugged terrain. This must be anticipated in planning.

As the tempo of operations increases and as widely dispersed formations are employed over extended frontages and depths, the necessity for providing larger amounts of fuel and lubricants, and ammunition on a limited road net will require special attention. Traffic must be rigidly controlled and road maintenance becomes of primary importance to effect supply. To reduce unnecessary damage to roads and trails and to prevent interference with supply vehicles, armored vehicles not required for the immediate operation should not be retained in the forward areas.

Engineer support is required for combat and logistical elements. Quite often a small engineer effort will permit tanks to move to advantageous attack and firing positions over the roughest type of terrain. Available roads and trails must be kept in as good repair as possible to permit the movement of armor. Tank dozers and bridging material must be kept well-forward.

The control of mobile armor operations is largely dependent on effective radio communications. As the majority of ra-

dios in armor units are of the FM (frequency modulation) variety, whose range is generally limited to "line-of-sight," it is readily apparent that rugged terrain will have an adverse effect on the commander's ability properly to control his far-ranging formations. Such an eventuality must be anticipated during planning phases and steps taken, such as the establishment of aerial or ground relay stations, to surmount these adverse conditions.

Up to this point we have discussed only the limitations in difficult terrain. There are certain advantages which should be considered and exploited to the fullest. Great success on the battlefield can be achieved through the element of *surprise*—that is, an attack from a direction from which the enemy least expects it and against which he is least prepared to defend. Difficult terrain may provide many opportunities to catch the enemy unprepared. It may also provide natural concealment and excellent cover against nuclear effects.

Weather

Ideal weather—characterized by average temperate zone temperatures, no exceptional precipitation, or violent storms—permits the full power of armor to be realized. Against this ideal weather environment the commander must so evaluate his adverse conditions to achieve as nearly as possible the maximum effectiveness of armor. This evaluation must take into consideration snow, ice, mud, extreme cold, sharp variations in weather, and seasonal transitions. A careful analysis will assist the commander to make a decision best calculated to minimize the adverse aspects of weather.

Here, again, we find that careful consideration must be given to the increased requirements for logistical support, maintenance, and engineer support. The tempo of operations is slowed primarily because one of the greatest attributes of armor,

its mobility, is affected. Snow and mud are the major restrictions on movement; but extreme cold also affects mobility when roads and slopes become icy. Troops require special clothing, and special provisions will be required for both individual and unit rotation during combat and for available heated shelters for all personnel. Exposure to extreme cold and deep snow will result in reduced mental and

heavily wooded areas and deep snowdrifts and take advantage of wind-swept ridges where snow cover is thinnest. During extreme cold, thickly frozen lakes and rivers become excellent routes for movement.

Visibility

Conditions of visibility have a significant effect upon the conduct of armor operations. The ideal time for the employ-



Water course training test

physical alertness and efficiency. Weapons and vehicles must be winterized with special lubricants. The need for special equipment, such as "traction devices," to increase the trafficability of armored vehicles on icy slopes and to lower the ground pressure in snow and mud must be foreseen.

Under arctic or winter conditions, the short periods of daylight and the difficulty of concealing movement in snow-covered terrain will cause an increase in night operations. Movement by night frequently will be aided by a clear atmosphere and bright moonlight. Armor should avoid

movement of armor is that affording ample light to facilitate control, movement, and integration of combat power. In the past, night operations were conducted by armor only as demanded by necessity. Operations during hours of darkness and reduced visibility require careful planning and consideration by the commander if they are to achieve maximum effectiveness. The very nature of operations at night causes confusion, complication in control and movement, and difficulty of identification. But the conditions existing when visibility is reduced afford the commander an

opportunity to capitalize on the advantages of concealment and this may, in his evaluation, overcome the disadvantages of darkness.

Because they were seldom employed in the past, armored night attacks are not familiar operations. However, the destruction capabilities of nuclear weapons and the surveillance techniques that will be employed on the future battlefield will make daylight operations increasingly difficult. To survive in future warfare and to conserve our most precious commodity—man—armor must learn to capitalize on, and exploit, the hours of darkness.

Night operations must be emphasized and stressed in training to realize the greatest benefits to be derived from their employment. They should be used at every favorable opportunity. The major benefits that can be obtained are: avoiding heavy losses which would be incurred during daylight hours, achieving surprise and psychological advantage, and exerting continuous pressure on the enemy to preclude his gaining the initiative. Detailed preparation and planning are essential. The most important considerations are: the selection of a limited objective, the necessity for detailed map and visual reconnaissance, well-defined axis of advance, methods of control and identification between subordinate and adjacent units, speed in reorganization upon seizure of the objective, counterattack plans, and supply and evacuation.

The various illuminating devices, such as tank mounted searchlights, infrared driving devices, infrared gunnery devices, searchlights, flares, and other illuminating devices, will give more assurance of continued and uninterrupted control. White phosphorus and other illuminating shells should be placed on the objective and just beyond the objective for identification and as a guide for the attacking force.

The time at which night attacks should be made will be dependent upon the mis-

sion of the unit. If the attack is to gain an important terrain feature from which a larger coordinated attack is to be launched at daylight, then the night attack should be made so as to be completed just prior to dawn. If the objective is to improve a defensive area or to regain the initiative in a defensive posture, the night attack should be launched prior to midnight to allow for reorganization before daylight.

Peacetime training must emphasize and stress night driving and firing, and field expedients, thereby instilling self-confidence and a sense of comradeship in all personnel involved in night operations.

Interrelationship of Conditions

The adverse conditions of terrain, weather, and visibility cannot be differentiated categorically. Exceptional variations in terrain may be further complicated by the wide range of weather environment. Extreme cold or heat takes on added significance in the application of armor combat power when occurring in relation to mountains and other difficult terrain. Negotiation of difficult terrain under adverse weather and climatic conditions may present further problems for the commander if it must be done at night, in a dust storm, or through haze and smoke. All three considerations are interrelated; each, however, contributes to the less than ideal operational environment. When combined, these aspects make up that condition or set of conditions *which we must expect* on the nuclear battlefield. Therefore, these conditions must be considered the *normal* for day-to-day operations, rather than extraordinary or unusual.

Aggressive nuclear warfare requires that constant pressure be maintained on the enemy. Armor commanders at all levels must be prepared for operations under the most unfavorable conditions of terrain and weather, and with little regard to the characteristics of the forces available. The wide variety of operational environments, of forms of war, and of the scale of use of

nuclear weapons on the modern battlefield requires that armor be prepared to fulfill its assigned roles regardless of the limiting considerations involved. The preparation for these contingencies entails the recognition that the use of armor in less than ideal conditions be considered as *normal operations* and that detailed plan-

ible, mobile dispersion-concentration-dispersion pattern of armor application. Therefore, the commander, after analyzing adverse conditions of terrain, weather, and visibility, will employ that force structure which is best designed to overcome these disadvantages—small, streamlined, highly mobile combined-arms teams capable of



Tank crossing a gap over an unfolding bridge

ning and preparation are required to minimize the effects of these limitations.

Force Structure

Ideally employed in its classic role, massed armor is considered a very powerful force of combat. The Panzer thrusts and blitzkriegs of Guderian and Rommel, and the massive onslaught of the armored might of Patton and Harmon, exemplify the ultimate in armor warfare. However, in the nuclear age the operational environments have so changed that the massed armor concept is now achieved by the flex-

rapid concentration and rapid dispersion. As the battle moves farther and farther from the classic conception of armor, as the weather and climate add their ever-increasing restrictions, and as darkness confuses the already complicated battlefield, the commander may find the infantry squad supported by tanks to be the answer to a specific problem of terrain, weather, or visibility. Achieving the desired goals of armor becomes a consideration of quality and intensity of combat power rather than solely a mathematical equation of quantity.

College Philosophy

To appreciate fully the broad and comprehensive treatment of the employment of armor under those conditions which are far from ideal, the U. S. Army Command and General Staff College approach to its interrelated doctrinal and instructional objectives should be considered briefly. Fundamentally, the College applies the most modern operational concepts to a broad, yet realistic, sampling of operational environments. This broad governing philosophy is promulgated by specific guidelines which establish the parameters for instructional goals and doctrinal development. During the past year there has been a considerable increase in emphasis on winter climates and on those areas of the world which are considered to be more likely areas for the conduct of limited war. Thus the College is assured that the curriculum is based on sound doctrine and diverse, yet likely, operational environments, including those which are far from ideal.

Specific Application

The Armored Division Course of Study emphasizes the employment of armor under conditions which are other than ideal. The development of sound and practical instruction in this critical area rests upon a detailed analysis and evaluation of all the critical factors. These factors include, but are not limited to, improved technological means particularly in the fields of armor mobility, nuclear weapons systems, combat surveillance, target acquisition, advancement in missiles, chemical and biological warfare means, and the advance techniques of rear area security and rear area damage control.

The course of study is designed to emphasize the vital role of armor in the Army's combined-arms team in a variety of environments, locales, forms and phases of war, and against the full range of the capabilities of any potential enemy. Embracing all types of armor operations, it

provides the essential nucleus of instruction in armor and in tactical operations for which highly mobile forces are particularly well-suited. Conditions are considered adverse whenever the mobility and combat power of armor are affected. In this respect it is recognized that present armor forces are primarily limited by their dependence on logistical support and their sensitivity to difficult terrain, extremes of climate and weather which decrease trafficability, and major obstacles or barriers. To portray these problem areas realistically, actual terrain, weather, and light conditions for the geographical areas selected in the various strategic settings are used. Special attention is given to night operations and operations over areas offering poor trafficability and limited routes of communications.

The subject matter in the Armored Division Course of Study is divided into three phases: familiarization, initial application, and advanced application. In the familiarization phase the instructional material is oriented on and includes certain limitations and problems which exist in armor operations. This phase is characterized by good conditions with no unique or unusual problems of climate or terrain.

In the initial application phase the range of problems encompassing varying operational environments in many locations and with difficult terrain and weather conditions is correspondingly increased. This phase features night operations, problems presented by movement through woods and swampy areas, operations in mountainous areas, and operations against enemy ground, air, and nuclear superiority.

In the advanced application phase complex and difficult tactical administrative problems are encountered. This phase involves examination of operations in hot, arid areas (desert), operations in cold weather with snow, night operations, and operations in areas with very poor cross-country trafficability.

Special attention is given to the requirement for effective coordination and integration of all forces at the disposal of the commander to meet the challenge of the situation and overcome the difficulties presented. Close coordination with supporting and supported infantry is stressed. Specific problems illustrate operations of armor in conjunction with helicopter-landed infantry forces, attachment of armored di-

is placed on the formation and use of small, highly mobile, self-contained combined-arms forces, to include the desirability, capability, and technique of changing task organizations rapidly to accomplish the requirements of rapidly changing situations.

The presentation of the less than ideal conditions is designed to offer a real challenge to the student. It requires the devel-



Personnel carriers

vision elements to an infantry division as required by terrain and enemy situation, attachment of armored division elements to assist in the accomplishment of the airborne division mission, attachment of an infantry battle group to the armored division for purposes of executing a counter-attack, and attachment of infantry forces to the armored division to assist in conducting a delaying action on a wide front. In meeting the problems presented by terrain conditions and enemy actions, stress

opment of the ability to recognize problem areas, determine basic considerations, and arrive at sound, logical decisions. The ultimate purpose is achieved when the commander and staff officer can realistically analyze, and are prepared to cope with, these difficult problems. Furthermore, the presentation of these complex and mentally exacting situations should lead to a thorough understanding and realistic application of modern doctrinal concepts. Also, it is intended that consideration of these

conditions will produce more forward-looking doctrinal concepts and will facilitate the development of future concepts into sound, practical principles. By this means the commander is prepared to cope with the changes in the nature and doctrine of armor operations in the future.

The Armored Division Course of Study is augmented and supported by integrated instruction in the Airborne and Infantry Division Courses of Study and in corps and army problems. In this respect, special emphasis is placed on close cooperation of all combat arms in small tactical groupings. The development of sound and practical instruction in this important area is based on a detailed analysis and evaluation of all significant factors.

Looking to the Future

The difficult and demanding considerations of terrain, weather, and reduced visibility envisioned for the modern nuclear battlefield dictate that our thinking in this vital area be projected into the future. Continuous development of doctrine requires a thorough knowledge of research and development, time-phasing of military hardware, projected field tests, and effective liaison with agencies on an Army-wide basis.

An evaluation of the future battlefield foretells many radical changes in techniques and concepts. There is a continuing requirement for developmental thinking on organizational, operational, and materiel development of armor for the future. A lighter tank, employing more advanced fuels, having better cross-country all-weather mobility, greater range, improved vision devices, increased communications capability, more powerful weapons, and more effective armor protection must be developed. Advanced concepts of organization, intelligence, operations, and administrative support also are essential

tools of the future. Both the tank vehicle and concepts for its employment are foreseen as giving to the armor of the future an increased capability for effective operations under adverse conditions.

The adverse effects of difficult terrain, extremes in climate and weather, and darkness and other periods of reduced visibility can be overcome to a measurable degree by the advances in technology and concepts of organization. The employment of armor requires the commander to project his thinking boldly into the future. He must recognize not only the risks inherent in the various courses of action, but also the great advantages that will accrue to a forthright and courageous leader.

Summary

The wide range of operational environments, the forms of war, and the scale of use of nuclear weapons on the modern battlefield dictate that armor must conduct operations regardless of the limiting considerations. Armor must adapt its desirable characteristics of mobility, shock action, firepower, and personnel protection to the modern battlefield. In adapting the force structure to overcome the adverse conditions of the environment, certain modifications may be required to minimize the disadvantages of the adverse situation.

To assist armor in performing the wide variety of missions of modern war, encompassing nuclear fires, electronic warfare, chemical and biological warfare, improvement must be made in materiel developments to increase the mobility characteristics of armor. However, until these materiel developments have been realized, prior planning and preparation, imagination, initiative, mobility of mind, and drive by all commanders can, to a great measure, overcome the limitations imposed by these adverse conditions.

MILITARY NOTES

AROUND THE WORLD

UNITED STATES

Lunar Gardens

The United States Air Force is seeking methods for growing food plants on the moon as a means of sustaining human life on a lunar base. Basic purpose of the study is to determine how vegetables can be grown to maturity in the low-pressure atmosphere of the moon. Previous studies have investigated algae cultures for food and oxygen production in space travels and planetary stays. Little work has been reported on the use of higher plants. The typical lunar day of about two weeks of continuous daylight, the effect of low-pressure conditions on plant growth, and germination problems which may be encountered are factors to be considered during these studies.—News item.

AEC To Use Thorium

The Atomic Energy Commission (AEC) has undertaken a long term project at its Oak Ridge headquarters to develop a "thermal breeder reactor" which, it is hoped, will turn thorium into a material that can be used for nuclear fission. Successful development of thorium as a nuclear power source would add substantially to the world's reserve of nuclear fuel. The process will involve placing thorium into a reactor with Uranium 233 or 235 to produce new supplies of U 233.—News item.

Aluminum 2½-Ton Truck

Undergoing tests is an aluminum 2½-ton truck which weighs less fully loaded than the current model does empty. Air transportable and air droppable, the new eight-wheel drive cargo vehicle has improved cross-country mobility and is equipped with power steering.—News item.

Thermoelectric Generator

A small thermoelectric generator, capable of converting the heat of a burning fuel directly into electric energy, has been developed by a commercial manufacturer for the Air Research and Development Command. The unit produces three times as much power per pound of weight as any previously known generator. It burns propane as a fuel and can be adapted to use other fuels. As is typical of thermoelectric devices, it has no moving parts and is extremely efficient in operation.—News item.

Research Investment

The United States Government spent two billion dollars on military research in Fiscal Year 1959, representing an investment of five percent of the total defense budget and employing the efforts of two-fifths of the 240,000 scientists and engineers in the country.—News item.

Army Aviation

The United States Army now has about 7,000 qualified pilots trained to fly the more than 5,000 aircraft now in the Army inventory. This inventory currently includes about 11 types of fixed- and rotary-wing operational aircraft plus numerous versions of prototype and developmental aircraft. The following paragraphs constitute a review of the standard operational aircraft.—News item.

'L-19A, Bird Dog'

An observation type airplane used primarily by infantry, artillery, and armored units, this is the Army's standard fixed-wing light observation class aircraft. It is equipped with flaps, fixed landing gear,



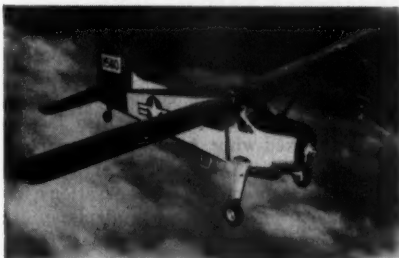
L-19A, Bird Dog

and steerable tail wheel to permit maximum efficient operation from small, unimproved landing fields in the immediate vicinity of troops engaged in combat. The *Bird Dog* has a speed of 86 knots and a range of 400 miles. Powered by a six-cylinder horizontally opposed piston type engine, it has a wingspan of 36 feet, is 25 feet long, and 9.2 feet high. The *L-19* carries a pilot and one observer passenger.—Official release.

'L-20, Beaver'

A utility type airplane employed at division and higher headquarters to expedite and improve ground combat, this is the Army's standard fixed-wing utility class aircraft. The rugged airplane has ex-

tremely large wing surfaces, incorporates flaps, fixed landing gear, and steerable tail wheel to permit operation from short unimproved landing fields. It carries a pilot and five passengers; pilot, three litter patients, and a medical attendant; or pilot and approximately 1,000 pounds of cargo.



L-20, Beaver

The speed of the *Beaver* is 97 knots and the range is 500 miles. Powered by a nine-cylinder radial piston type engine, the aircraft has a wingspan of 48 feet, is 30.3 feet long, and 10.4 feet high.—Official release.

'L-23, Seminole'

The *Seminole* is a command type twin-engine airplane employed at corps or higher headquarters for the accomplishment of command, liaison, and courier mis-



L-23, Seminole

sions pertinent to combat zone operations and training. It is the Army's standard fixed-wing command class aircraft. This reliable twin-engine aircraft equipped with

flaps and retractable tricycle landing gear is a remarkable performer from relatively short, improved landing fields. The airplane carries a pilot and five passengers, is capable of long-range all-weather flying, and can be flown safely on one engine in case of emergency. Its speed is 139 knots and its range is 800 miles.—Official release.

'U-1A, Otter'

Assigned to Army Corps of Engineer units to assist in the conduct of topographic operations, the U-1A also is assigned to fixed-wing tactical transportation companies in quantities of 16 per company to support ground operations in the combat zone. A rugged airplane, it has extremely large wing surfaces, fixed landing gear, and steerable tail wheel to permit maximum efficient operation from short unimproved fields. It carries a pilot and 10 fully equipped troops; or pilot and approximately 2,000 pounds of cargo; or



U-1A, Otter

US Army Photo

pilot and six litter patients. The *Otter* is powered by a nine-cylinder radial piston type engine, has a wingspan of 58 feet, is 41 feet 10 inches long, and 12 feet 7 inches high.—Official release.

'H-13, Sioux'

A single-engine helicopter incorporating a two-blade main rotor and two-blade tail rotor with conventional control system, the H-13 is the Army's standard observa-

tion class helicopter. It is used extensively at the Army Aviation School, Fort Rucker, Alabama, as a primary helicopter flight trainer, and by combat units for reconnaissance, emergency medical evacuation, command liaison, wire laying, and resupply in the combat zone and in training. It has an open configuration fuselage with bubble type cockpit, skid landing gear with ground handling wheels installed, and provisions for attaching two litter pods on the landing gear cross tubes outside the aircraft. This helicopter carries a pilot and passenger inside, or a pilot and two litter patients. Its speed is 59 knots and it has a range of 125 miles. It is powered by



US Army Photo

H-13, Sioux

a vertically mounted six-cylinder horizontally opposed piston type engine; has a rotor diameter of 35.1 feet, is 41.4 feet long, 9.5 feet high, and 8.6 feet wide.—Official release.

'H-19, Chickasaw'

The *Chickasaw* is the Army's standard utility class helicopter. It is a single-engine air vehicle incorporating a three-blade main rotor and two-blade tail rotor. Used extensively by combat units to transport supplies, equipment, personnel, small units, and for aeromedical evacuation in the combat zone, the H-19 carries a pilot, copilot, and seven passengers; pilot, copilot, and six litter patients; or about 1,800 pounds of cargo. Its speed is 80 knots and range is 200 miles. Power is

provided by a nine-cylinder radial piston type engine mounted in the nose and inclined aft 35 degrees. Main rotor diameter



US Army Photo

H-19, Chickasaw

is 53 feet. It is 62.3 feet long, 46.1 feet wide, and 15.3 feet high.—Official release.

'H-21, Shawnee'

A large single-engine helicopter, the *H-21*, like the *H-34*, is one of the Army's two standard light transport class helicopters. It is assigned primarily to transportation helicopter companies and is used to transport supplies, equipment and per-



US Army Photo

H-21, Shawnee

sonnel, and for aeromedical evacuation within the combat zone. The *H-21* has won acclaim with the Army in unprecedented accomplishments while participating in civil disaster operations and world record-breaking endurance flights. Powered by a

nine-cylinder radial piston type engine, it is equipped with two main loading doors, has a rotor diameter of 44 feet, is 86.3 feet long, 39 feet wide, and 15.4 feet high over-all. The *Shawnee* carries a pilot, copilot, and from 10 to 20 troops, depending upon the equipment they carry and distance to be hauled; pilot, copilot, and 12 litter patients; or pilot, copilot, and about 3,000 pounds of cargo. Its maximum speed is over 100 knots and its range 200 miles.—Official release.

'H-23, Raven'

A single-engine helicopter, the *H-23*, is an observation class helicopter. Used extensively by the Army as a helicopter pilot primary flight trainer, the aircraft also



H-23, Raven

is assigned to some engineer corps units as well as Reserve component and non-combatant units of the Army in the Continental United States. It is powered by a vertically mounted six-cylinder horizontally opposed piston type engine and has a rotor diameter of 35 feet, is 40.5 feet long, 9.8 feet high, and 10 feet wide. Used for reconnaissance, evacuation of wounded, command liaison, wire laying, and resupply, the *Raven* carries a pilot and passenger inside or pilot and two litter patients in pods attached to cross tubes outside of aircraft. Its speed is 59 knots and range is 125 miles.—Official release.

'H-34, Choctaw'

The *H-34* is one of the Army's two standard light transport class helicopters. It is assigned primarily to transportation helicopter companies and is used to transport supplies, equipment and personnel, and for aeromedical evacuation within the combat zone. It is a large single-engine, all metal helicopter. The *Choctaw* won acclaim in 1956 when Army aviators established three world helicopter speed records over a closed course at Bridgeport, Connecticut. Powered by a nine-cylinder radial piston type engine mounted in the nose, facing aft, and inclined 35 degrees from horizontal, the *H-34* incorporates a single cabin door for loading, has a rotor diameter of 56 feet, is 65.8 feet long, 40



H-34, Choctaw

feet wide, and 15.9 feet high over-all. The helicopter carries a pilot, copilot, and from 10 to 18 troops depending upon the equipment they carry and distance to be hauled; or pilot, copilot, and about 3,000 pounds of cargo. Its maximum speed is over 100 knots and range is 200 miles.—Official release.

'H-37, Mojave'

A giant twin-engine all metal helicopter, incorporating a five-blade main rotor and four-blade tail rotor, the *H-37* is the Army's standard medium transport helicopter. This machine is designed for tactical transport and cargo operation, and

is used by transportation helicopter companies. Powered by two 18-cylinder twin-row radial piston type engines mounted in nacelles at the tips of a short high wing, the *H-37* is the largest helicopter in the Army inventory. Fuel is carried in wing and nacelle tanks. The lower portion of the nose of the fuselage consists of "clam-shell" type cargo loading doors and a cargo loading ramp. It can accommodate 36 fully equipped troops, 24 litters, or



H-37, Mojave

equipment as large as a 105-mm howitzer, plus $\frac{1}{4}$ -ton trailer inside its fuselage. Instead of these internal loads, it can carry up to 10,000 pounds of cargo in an external sling which may be attached to the floor of the fuselage.—Official release.

'HU-1A, Iroquois'

The *HU-1A* helicopter is a utility type aircraft of compact design and low silhouette. It has a wide cabin with large cargo space which permits its use for the transportation of personnel, supplies, and equipment. It is adaptable for medical evacuation use where facilities for fixed-wing aircraft are not available. The helicopter is equipped with instruments for flights under conditions of restricted visibility and can operate from quickly prepared or unprepared landing strips. It can be equipped to employ radio navigational aids. Maximum visibility is afforded the pilot and crew by use of transparent plastic panels at the top, front, bottom, and

sides of the cabin. Crew entrance is accomplished through two swing-hinged doors located in the forward cabin areas



HU-1A, Iroquois

next to the pilot's and copilot's stations.

The crew consists of the pilot alone, pilot and medical attendant, or pilot and copilot, depending on the mission assigned.—Official release.

BMEWS Sites Selected

At least two of the three proposed forward sites for the Ballistic Missile Early Warning System (BMEWS) have been selected and it is reported that negotiations with the British are now underway for a third site somewhere in Scotland. The two sites selected are at Clear, Alaska, and Thule, Greenland. Early plans for the system called for three high-powered radar stations in the northern latitudes feeding data into a central computer and display facility. An objective of the system is to provide at least 15 minutes' warning of an intercontinental ballistic missile attack. Total United States investment in the system will approach the billion-dollar mark. Great Britain is expected to contribute substantial sums to the support of that portion of the system that will be used jointly. The BMEWS line will complement the Distant Early Warning (DEW) Line which is designed to detect aircraft and air-breathing missiles.—News item.

Korean Reconstruction Assistance

A little-publicized program of reconstruction assistance has been in operation in Korea since 1953 and has resulted in the completion of 3,847 projects to date. Included are schools, orphanages, bridges, civic buildings, and public utilities. Started by General Maxwell D. Taylor when he was serving as Commanding General, 8th United States Army, the program initially was based on an authorization to use military supplies and equipment for civilian relief and rehabilitation. Congressional approval and funding through the International Cooperation Administration with the Commanding General, 8th United States Army, as the program director, has resulted in the investment of a little over 20 million dollars for a return of an estimated 66 million dollars in public property. Top priority in the program has been given to the construction of schools with 1,440 completed and more than 200 additional under construction or planned. The program is administered through United States and Korean military forces. Funds allocated by the United States have been used for materials not available locally.—News item.

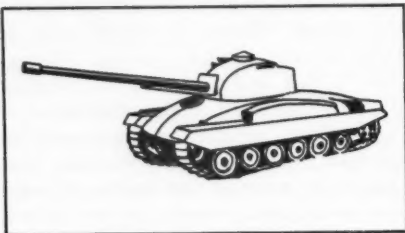
'Tactical Operations Central'

Electronic equipment for a tactical operations control center, which will adapt automatic data processing procedure to the control of operations in the field, is under development for the Army. Tactical guidance for the project is being provided by the U. S. Army Command and General Staff College under US Continental Army Command direction. The system will provide the field commands with a high-speed facility for handling large quantities of information, making computations, and presenting the information to the commander in a coherent manner seconds after it is received.—Commercial release.

SWITZERLAND

'P58' Light Tank

The Swiss Army has developed a prototype of a 35-ton light tank designated the *P58*. This vehicle mounts a new 90-mm cannon and a coaxial 20-mm machinegun



Swiss *P58* light tank

in the turret. The unusually long 90-mm gun has exceptionally high muzzle velocity and is reported to have great armor-piercing capability.—News item.

CANADA

Arms For NATO

Since the North Atlantic Treaty Organization (NATO) was formed 10 years ago, Canada has provided 16 hundred million dollars worth of arms for her European allies. She has provided 30 percent of the materiel strength of the Greek Air Force, and 17 percent of the Turkish Air Force. Included were 107 *Sabers* and 16 *T-33's* for Greece, and 107 *Sabers*, 24 *T-33's*, 24 *Mentors*, and 40 *Harvards* for Turkey.—News item.

Nuclear Powerplants

Canada plans to build her first large nuclear powerplant on the eastern shore of Lake Huron at Kincardine, 140 miles northeast of Toronto. Atomic Energy of Canada, a Crown-owned agency, and the Hydroelectric Power Commission of Ontario have chosen this site for the construction of a 200,000-kilowatt generator. A smaller pilot plant, producing 20,000 kilowatts, is expected to go into operation in the Ontario area by 1961.—News item.

LIBERIA

Defense Pact Signed

It was recently announced that a defense agreement between the government of Liberia and the United States was signed this past summer. The pact provides that "in the event of aggression or threat of aggression against Liberia, the government of the United States of America and the government of Liberia will immediately determine what action may be appropriate for the defense of Liberia." The pact was signed as an executive agreement and, therefore, does not require Senate approval.—News item.

MEXICO

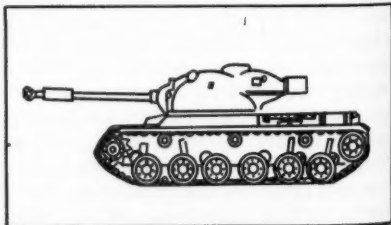
Radioactive Mineral Find

Two new sources of radioactive minerals have been located in Mexico by agencies of the National Commission for Nuclear Energy. One bed is in the Sierra Gómez Mountains and the other about 124 miles from Ciudad Juárez, Chihuahua in the area of Ojinaga.—News item.

JAPAN

'STA2' Light Tank

The Japanese have developed a 35-ton light tank which mounts a high-velocity 90-mm gun plus two machineguns. The *STA2* is only 79 inches high and is



Japan's new light tank

equipped with a 550 horsepower air-cooled diesel engine. It is operated by a four-man crew and affords up to 75-mm of armor protection.—News item.

COMMUNIST CHINA

Communist China's Militia

The Chinese Communists are reported to have drafted a militia force of 250 million men and women. Of this number, 130 million, consisting of men between the ages of 16 and 32 and women between 17 and 25 years of age, will constitute the "basic" militia and will be trained as front-line reserves. This group will be drafted immediately into the regular army in the event of war. The remainder will consist of older men and women under 50 years of age who will comprise the "ordinary" militia charged with support of the front and maintenance of peace and order in the rear. Children under 15, persons over 50, and the infirm are not included in the 250 million aggregate but will be organized into a "rear service contingent." Training of the militia generally is conducted before and after work in fields and factories.—News item.

Peiping's New Defense Minister

Lin Piao, Communist China's new defense minister, is a professional soldier who long has been an advocate of communism. Marshal Lin, now 51 years of age, was promoted to the grade of colonel and commanded a Kuomintang regiment before he was 20 years of age. His Communist affiliations date back to this period, and when Generalissimo Chiang Kai-shek turned against the Communists, Colonel Lin defected to the Communists with his regiment. Marshal Lin is reported to be revamping his regular ground forces into modern streamlined divisions capable of using nuclear weapons.—News item.

NORWAY

New Minesweepers

Two United States Navy minesweepers have been converted into minesweeper-patrol vessels at Charleston, South Carolina, for the Norwegian Navy.—News item.

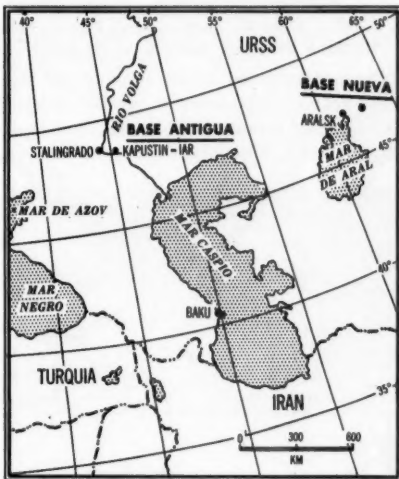
USSR

Missile-Launching Submarine

An unofficial report indicates that at least two Russian submarines have been observed in the Baltic Sea, towing missiles in special containers and firing them from the surface of the water. A second report states that a converted *W* class submarine has been seen off Iceland, and it is alleged that when detected her crew hastily pulled a tarpaulin over her superstructure to conceal vertical launching tubes. The *W* class vessel has an operating radius of 13,000 to 16,500 miles.—News item.

New Satellite And Missile Base

The USSR is unofficially reported to have established a major satellite and mis-



Satellite launching bases

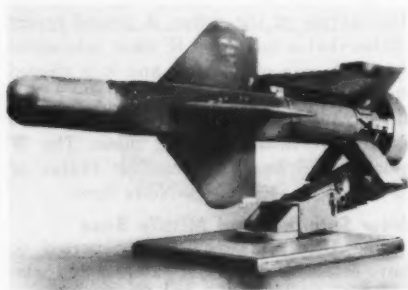
sile-launching facility near Aralsk in the region northeast of the Aral Sea. The new base is believed to have been in operation less than one year. The old Soviet base was at Kapustin-Yar near Stalingrad.

A third base capable of launching intercontinental ballistic missiles is located in the Novaya Zemlya Islands in the Arctic.—News item.

AUSTRALIA

'Malkara' Antitank Missile

The Australian-designed and built *Malkara* antitank missile has been adopted as standard equipment by the British Army



Australian News and Info Bureau Photo

Malkara antitank missile on launcher

after extensive tests conducted during this past year. The *Malkara*, a hand-controlled, wire-guided weapon, will be mass-produced in Australia. Signals directing the weapon



Australian News and Info Bureau Photo

Wire-guided *Malkara* in flight

to a moving target are transmitted by a thumb control along the wire attached to the missile in flight. When the target is visible to the operator, the weapon has proved almost 100 percent accurate. The missile weighs approximately 200 pounds. —News item.

Defense Budget Up

Australia's defense budget for Fiscal Year 1960 as proposed to the House of Representatives by the Federal Treasurer reflected an increase of 7.8 million dollars over 1959. Included were \$675,000 for civil defense and \$1,615,500 for economic aid to Southeast Asia Treaty Organization (SEATO) countries.—News item.

NATO

Land Warfare Center

A land warfare center will be established in Europe as a result of agreements between Supreme Allied Commander Europe (SACEUR) and top United States Army officials. The center will facilitate development of joint ground force doctrine for use by all of the NATO nations. Its operation will be under SACEUR's control and will be similar to the operation of the Antisubmarine Warfare Center in Italy which now functions under Supreme Allied Commander Atlantic's (SACLANT) auspices.—News item.

Missile Support In Europe

The United States Army plans to establish an inventory control point in France to provide supply and maintenance support of missile systems furnished NATO nations. The control point will be incorporated into the NATO Maintenance Supply Service Center at Chateauroux which is currently being operated by the US Air Force. It is reported that this facility will be turned over to NATO by mid-1961.—News item.

PAKISTAN

US Communications Facility

Pakistan and the United States have signed an agreement providing for the establishment and operation of a US communications unit at Peshawar, Pakistan. The new station will be part of a worldwide system and will provide a link between the Middle East and the Pacific areas.—News item.

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MILITARY DIGESTS



THE MANY FACES OF NATO

Words, deeds, and actions are interpreted by each of us in the light of our own experiences and interests. So it is with the North Atlantic Treaty Organization. To the American it is a force for peace, designed to defend the freedom of Western Europe and to assure the defense of the United States. To the Soviet leaders NATO is an apparition, comprising a ring of offensive airbases and nuclear-supported land and naval forces, which poses a threat to the expansion of communism. There are many views on what NATO is or should be. We know why NATO was created, but it is well to evaluate its stature in the eyes of others. It is for this purpose that the following articles are presented. The opinions expressed are those of the authors.—Editor.

NATO--Weapon of Aggression

Digested by the MILITARY REVIEW from an article by Y. Nalin in "Survival" (Great Britain) May-June 1959.

A view of the North Atlantic Treaty Organization as seen from behind the Iron Curtain is likely to be somewhat distorted. This article, originally published in Red Star, the Soviet Army's daily newspaper, presents the well-known Communist arguments against the existence of the alliance. NATO is portrayed as an instrument for the suppression of democratic movements perpetrated upon Western Europe by the United States. It is a means of forcing these countries to support her aggressive intentions against the peace-loving countries of the Soviet Colonial Empire.—Editor.

AT THE beginning of April the governments of the countries which are members of the aggressive North Atlantic bloc will gather in the full glare of publicity to celebrate the 10th anniversary of the pact.¹ At the moment, the achievements of the bloc are being examined in the countries of the West. . . . Bourgeois newspapers, magazines, and radio stations are sparing no effort, in the period leading up to the anniversary, to present NATO as a defensive alliance. But what are, in fact, the achievements of the organization in the 10 years since its foundation?

The history of NATO is of a long series of aggressive actions designed to subvert peace and cooperation between nations, and of preparation of war against Socialist countries in order to establish the domination of the world by the United States. The North Atlantic bloc has proved to be an instrument for the suppression of democratic movements in the Western countries and for interference in the internal affairs of other states. . . .

¹ This article was written shortly before the 10th anniversary of NATO which was observed on 4 April 1959.

A Rearmed Germany

The arming of the Federal German Republic and her entry into NATO was a crude violation by the United States, Britain, and France of their obligation to unify Germany as a peace-loving and democratic state. Western Germany, in fact, after the Paris Agreements of October 1954 and her official entry into NATO the following year, became the striking force of the North Atlantic Pact in Europe. Proof of the importance which the United States gives to Western Germany can be found in the appointment of the former Hitlerite, General Speidel, as Commander, Allied Land Forces Central Europe. NATO's leaders also intend to supply the West German Army with rockets and thermonuclear weapons, and this in its turn is leading to a still greater threat to international security in Europe. . . .

These leaders have worked out a master plan for turning the countries of the Atlantic Alliance into military bases for aggression. At the session of the NATO council held in Lisbon in 1952, the United States imposed on her allies the program known under the name of "infrastructure," or to be more exact, the equipment of allied territories as theaters of war. The infrastructure program in detail aimed at the construction and modernization of air-bases, lines of fortifications, communications of strategic importance, stockpiles, and signal networks.

The Missile Threat

It is intended to establish 100 batteries² of rocket weapons in Europe. The network of military bases which NATO has set up along the frontiers of the USSR and other peace-loving countries are intended for

² A NATO objective of 100 battalions of missiles by 1963 has been announced in the press. (MR, Nov 1959, p. 85.)

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aggressive purposes. The American Senator, James Fulbright, for example, openly boasted in one of his speeches: "The whole world knows that our military bases are a threat to the Soviet Union," and these bases of the North Atlantic bloc, which are run by American generals, are a source of grave international tension. The sitting of guided missile and thermonuclear weapons, as well as the equipment of bases in the various NATO countries, lays these countries open to retaliation of the most destructive kind in the event of an attack by the Imperialists on the countries of socialism. In addition, such military bases violate the independence and sovereignty of the countries in which they are established. Military construction of this kind has a direct adverse effect on the local population whose land is taken away arbitrarily. Large tracts of territory are declared "forbidden zones," during military maneuvers. There is also a danger of death and destruction for the population arising from patrols by aircraft carrying atom bombs.

Aggression and Interference

The North Atlantic Treaty also has behaved as an international "policeman." It is sufficient to remind ourselves that its leading members took part in the war which the United States began in Korea, and, during the fighting in Indochina, the United States not only gave the French colonizers material help, but organized support for them within NATO. In fact, the problem of Indochina was discussed twice at sessions of the NATO council. In 1956, France and Britain, making use of their NATO bases in southern Europe and the Mediterranean, carried out their intervention against Egypt, and later against Lebanon and Jordan. Agencies of the Imperialist countries which are members of NATO organized the counterrevolutionary plot in Hungary. The Atlantic countries worked together in the plot

against the Indonesian Government. They constantly interfere in the internal affairs of countries of the Near and Middle East. And the United States has obtained the approval of NATO for her dangerous provocations in the area of the Chinese island of Taiwan.

The North Atlantic bloc is an evil enemy of the movement for national liberation of the peoples of Asia and Africa. This can be seen clearly in the fact that members of NATO—France, Belgium, and Britain—are treating the people in their colonial territories to a regime of violence and terror. Not long ago General Norstad stated that NATO's armed forces are ready to defend Algeria. It is not difficult to see that these words of the commander in chief indicate an intention to go to the help of France in her Algerian adventure.

The aggressive preparations of NATO and the unrestricted arms race are a heavy burden on the shoulders of the workers. For more than nine years, military expenditure of the Atlantic allies has been maintained at an astronomically high level—more than 500 thousand million dollars. NATO's European members are obliged to pay for 85 percent of the cost of the infrastructure program, 66 percent of the cost of military supplies, and 80 percent of the cost of maintaining the personnel of the unified armed forces. The United States demands ever greater "contributions" for the defense of the West" from her allies. At NATO's last council meeting, the Americans exerted pressure on their allies to force them to raise their military contributions in the coming year. Judging by the latest budget estimates it can be said that this pressure has had some effect. . . .

Recently, the leaders of the bloc worked out a five-year plan to further their military preparations. Under this plan it was proposed to send thermonuclear weapons to Europe, to build bases for intermediate range ballistic missiles, to reorganize many

of the formations of the unified armed forces, and to integrate special elements of the navies and strategic air forces into the NATO armed structure. It also was intended to arrange scientific and technical cooperation in the development and production of modern weapons, and in the training of scientists. The United States and Great Britain proposed the doctrine of "interdependence" to their allies in NATO or, to put it more clearly, the doctrine of joint intensive preparation for atomic warfare under the control and direction of the United States.

Internal Conflict

A serious factor that weakens NATO is the intensification of contradictions between its various members. Each country is struggling to get the better of its neighbors, and in this way to strengthen its position within the Capitalist camp. NATO's history provides many examples of serious disputes on a variety of aspects

of the alliance's activities between the Imperialist robbers themselves.

The Western allies are bitterly resentful of the dictatorial methods of the United States within the North Atlantic bloc. The smaller countries of Europe regard the increase in importance and influence of Western Germany within NATO with justified anxiety. There are deep-seated differences between the Atlantic allies on a whole series of problems connected with their economic relations and other matters. However, the existence of such contradictions in no way lessens the danger that military conflict may break out in Europe. . . . However, the countries of peace and socialism are now so strong that the Atlantic strategists have to reckon with them. Those who are in favor of military adventures must realize that any aggression undertaken by the North Atlantic bloc against the peace-loving nations will be defeated, and will end with their unalterable destruction.

NATO in the Nuclear Age

Digested by the MILITARY REVIEW from an article by Lincoln Gordon in "Survival" (Great Britain) May-June 1959. This article first appeared in "The Yale Review," Spring 1959. Copyright Yale University Press.

This article presents NATO as it is seen by the critical and informed American observer. The author, Mr. Lincoln Gordon, was a Rhodes Scholar before World War II and is now Professor of International Economic Relations at Harvard University. He has filled many important government positions, including Minister at the American Embassy in London. Here he presents the requirements for NATO's existence, the evolution of its strategy, the problems of control of strategic and tactical nuclear weapons, and the feasibility of a policy of disengagement in Europe.
—Editor.

THE last three years have witnessed an impressive public debate on both sides of the Atlantic on defensive strategy in Western Europe. It has run the gamut from the confident claim that war in Europe is out of the question under conditions of thermonuclear parity to the worried proposition that increased American vulnerability may undermine the only real deterrent to a Soviet overrunning of the entire Continent.

Some critics deplore all this concentration of attention on Europe, saying that while eyes are focused there the real battleground of the cold war is in the political, economic, and psychological contest for the underdeveloped countries; they

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also see the main danger of active hostilities on the Asian and Middle Eastern periphery of the Sino-Soviet bloc.

No one can rightly dispute the significance of the Soviet offensive in the less developed countries or the challenge which it poses, especially in competitive means for advancing economic development. But if the danger of direct aggression in Europe has become relatively less than elsewhere, must this not be attributed to the Western Alliance and its actions? If the danger is to be kept to a minimum, NATO strategy and resources require constant attention and new actions in keeping with the evolving character of the Soviet Union.

The Grand Prize

Europe remains no less than ever the grand prize in the cold war. She is no less capable than ever of turning the balance of power irrevocably against the side of freedom or of carrying with her the fate of Africa, the Middle East, and the remaining free areas of Asia. Soviet penetration in the underdeveloped countries is in addition to, not at the expense of, an increasingly threatening posture toward Europe.

If the Soviets were, in fact, satisfied with the European status quo, as many observers argued after the Hungarian episode, today's challenge to the Western position in Berlin would be inexplicable. Attempt after attempt has been made to secure the withdrawal of "foreign" (read American) troops from the European Continent or to emasculate them by eliminating their atomic capability. The contention sometimes advanced that the large Soviet ground forces in the satellite countries and on Russia's western perimeter are intended entirely for defense and for suppressing internal rebellion simply does not square with the evidence of their costly modernization in transport, tanks, artillery, and other weapons as well as in missiles and nuclear armament.

In short, second only to the maintenance

of thermonuclear parity with its requirement for a sufficient retaliatory force invulnerable to surprise attack, NATO strategy retains its position as the keystone of the Western World's defenses. Thus the fact of the debate about its nature is a healthy one. Nor is it merely of academic interest. Every member country is faced anew with decisions on the resources to be put at NATO's disposal and the production and development of new weapons. For the United States in particular, the debate bears on the maintenance of our forces in Europe, the sharing of nuclear weapons, and continued military assistance to some of our European partners.

What Is NATO's Role?

Throughout recent discussions, three main issues have been interwoven. Briefly stated, they are:

1. Should NATO forces stationed on the Continent of Europe be a mere tripwire to touch off strategic retaliation against any form of Soviet incursion, or a fully adequate defense able to repel any type of direct Soviet attack, or somewhere in between—and if in between, at what point?

2. Should there be European participation in direct control of nuclear weapons, strategic or tactical, and if so on what basis?

3. What are the merits for European defense of some form of disengagement?

Underlying all three issues is the problem of political cohesion in the Atlantic Community as the nuclear age progresses.

Since the major strategic striking power of the West is being supplied from outside, the critical issue in determining the desirable size, composition, equipment, and deployment of NATO forces is the strategic concept which governs the mission of the units on the European Continent or in continental waters. In its historical evolution this concept has involved a good deal of confusion, partly because of the huge disparity in certain periods

between announced goals and actual facts. The main phases of development may be traced briefly.

Evolution of a Concept

In a sense, the original North Atlantic Treaty commitment of 1949 implied an extreme version of the tripwire approach. There was no organized inter-Allied strategy, and the only significant local military strength was provided by the occupation forces in Germany and Austria. With the ending of the American atomic monopoly in September 1949, and especially after the outbreak of the Korean war, it was recognized promptly on both sides of the Atlantic that sole reliance on atomic retaliation was not an acceptable basic strategy. Despite widespread misunderstandings on this point, the notion of the mere tripwire subsequently has won no acceptance in responsible quarters, with the possible exception of the United Kingdom since her Defense White Paper of 1957.

From the tripwire extreme, the NATO strategic concept shifted in 1950 to the other extreme of containing the Soviets by conventional defense. But this concept proved wholly academic, since the goals of that year's medium term defense plan were never even remotely approached.

The Lisbon goals of 1951-52 aimed at a mixture of objectives. They were to provide adequate local defense against minor assaults. Against major assaults, they were to provide enough resistance to impose heavy costs on the Soviets, to assure that Western Europe could not be taken intact in short order, and to provide time for strategic air bombardment to be brought into play. But the size of the planned forces was as much influenced by considerations of European economic and political capabilities (taking into account very substantial American military assistance) as it was by strategic concepts.

The decision in 1954 to base NATO planning on the adoption of tactical nuclear weapons did not reflect a new stra-

tegic concept. Rather, it was designed to make up for insufficiencies in manpower by providing greater firepower. A deterrent concept for the local forces, as contrasted with a concept of entirely adequate local defense, came into being slowly during this phase.

The Sword and the Shield

Since 1955, and especially since the presentation by Supreme Headquarters Allied Powers Europe (SHAPE) of its "Minimum Forces Study," official NATO strategy has been presented in terms of the sword and the shield. The sword is mainly the United States strategic air arm, supplemented by the United Kingdom and certain naval forces. The critical objective for the local NATO "shield" has been the provision on the central front of 30 ground divisions and a considerable number of tactical air (and more recently missile) squadrons; these are to be complemented by substantial local forces of all three services on the northern and southern flanks. The equipment of these forces with land, air, and sea-based tactical nuclear weapons is an integral part of the plan.

This NATO shield, and even the partial approach to it which already exists, is clearly a good deal more than a mere tripwire. It is equally clear that it does not constitute a fully adequate local defense against any type of Soviet onslaught. The issue before the alliance is whether such a betwixt-and-between type of shield rests on a valid concept and whether it justifies the substantial—although by no means unattainable—efforts required to meet it and to sustain it in the future.

A good deal of thoughtful and well-informed comment has answered that question in the negative. Many observers have condemned the shield as "too large for a tripwire and too small for effective defense." Dr. Henry A. Kissinger, in his widely read *Nuclear Weapons and Foreign Policy*, states that NATO:

... is either a device to defend Europe locally or an instrument to unleash the British and American strategic air forces. It cannot be both and it cannot be the former without a more realistic defense effort by our European allies.

Kissinger rejects the alternative of a mere tripwire on the ground that strategic retaliation against a minor Soviet assault is not sufficiently credible to deter such assaults. Instead, he calls for an entirely revamped tactical nuclear force able to fight and win (or at least to achieve a stalemate in) any limited war in Europe. He argues that NATO forces, substantially smaller than Soviet (or Soviet plus satellite) local forces, can achieve this objective because of an inherent upper limit to the size of useful forces on a nuclear battlefield.

In my judgment, Mr. Kissinger's repudiation of the mere tripwire is valid, but his concept of a protracted limited nuclear war on the European Continent is entirely unbelievable. Europe is too valuable to be subject to the type of self-enforcing chess game rules for sanctuaries and open cities which he outlines.

How Much Is Enough?

Under this concept the shield is not an alternative to the strategic deterrent; it becomes an essential part of the deterrent against various possible forms of attack on Europe. Properly defined, it not only indicates the need for a shield force of intermediate size; it also provides a quantitative guide to the magnitude of that force.

NATO forces should be in a position, without using nuclear weapons, to deal with conventional satellite or even Soviet probing attacks. The difficult question is how far beyond this to go, and, in particular, how to define the function of tactical nuclear weapons as part of the NATO shield armament. In my view, this additional requirement should be defined as a clear capability of NATO shield forces

to destroy—with the weapons available to them, including nuclear arms—a maximum Soviet attack which does not employ nuclear weapons.

Under conditions of substantial nuclear parity, if there were in Western Europe only tripwire forces, the sole deterrent, even to minor actions not involving Russian forces, would be the possibility of thermonuclear retaliation with its implication of national suicide for all the powers concerned. Whether or not the willingness of NATO governments (especially our own) to undertake massive retaliation becomes weaker as Soviet nuclear delivery potentials increase, the Russians may come to believe that it does. They may, therefore, be tempted to try probing actions or to secure small local *faits accomplis* in order to destroy the cohesion of the alliance. Success in any such action, however minor, could start an endless chain of piecemeal aggression. All-out war thus might be initiated through miscalculation or even through an accidental encounter of forces at the border.

Determining Factors

The only sound means of preventing such a catastrophe is a sufficient defensive force in place in Europe to beat back any Soviet attack short of deliberate, clear-cut, and all-out aggression which would, beyond cavil, invite massive retaliation on our part. The critical determinant of the size of the NATO shield, then, is this capability—a defensive force which, using tactical nuclear weapons to the extent necessary, could clearly break up and defeat a maximum Soviet nonnuclear attack. Since this force is larger than would be required to deal only with border forays or probing actions, this is the requirement which fixes the desirable size of the NATO shield. Its deployment and tactics, including its necessary complement of conventional arms, must be designed to meet the highly localized objectives as well.

Facing a shield whose tactical nuclear

capability could defeat any Soviet conventional attack, the Soviets could not rationally initiate such an attack without first seeking to destroy NATO's own tactical nuclear potential. To secure this objective would require a large-scale nuclear attack on their own part. By meeting the above objectives, therefore, NATO will give the Soviets no option between total abstention from military aggression in any form (which is the military objective of NATO as a defensive alliance) and taking a major nuclear initiative themselves.

Deterrence at Any Level

Despite the development of low-yield nuclear weapons there is a sharper break between conventional and nuclear warfare than between any successive levels of conventional warfare. The use of nuclear weapons has unique political and psychological implications. A shield sufficient to force the nuclear initiative on the Soviet Union, as a prerequisite to any European aggression on their part, consequently entails a clearer likelihood from their viewpoint of inviting massive retaliation than any scale of purely conventional attack. They should not be given the impression that a conventional attack would, in no circumstances, result in strategic retaliation, but there should be no doubt whatever in their minds that a nuclear attack by them would result in such retaliation. In this way the combination of shield and strategic forces should serve to deter Soviet aggression at any level.

As already stated, this concept does not admit the likelihood of a protracted limited tactical nuclear war in Europe. It might, conceivably, involve limited hostilities of short duration. During this brief but crucial period there would be opportunity for political negotiation and mutual withdrawal. But if the Soviets chose general aggression notwithstanding, there would be no doubt as to the nature of the situation. As technological developments

reduce the reaction time for strategic weapons, and shift the major deterrent increasingly to ballistic missiles, which, once launched, cannot be recalled, the importance of introducing such a time element cannot be overstated.

Whether the forces now planned for the NATO shield meet this standard is a question for military analysis in the light of a detailed evaluation of changing Soviet capabilities. There is, however, reason to believe that the order of magnitude is substantially right.

Control of Nuclear Weapons

The question of European participation in the control of nuclear weapons is more difficult. It involves subtle political judgments of the effects of alternative arrangements on the cohesion of the alliance, the probabilities of national reactions differing from alliance reactions, and the likely Soviet estimate of these probabilities—an estimate which determines the deterrent effect.

While the distinction is somewhat artificial, it is convenient to differentiate between tactical and strategic nuclear weapons—only the latter being able to reach major Soviet centers from western European bases. Many of the European components of the NATO shield forces already are being equipped with tactical nuclear weapons. The warheads are to remain in American custody in a so-called NATO nuclear stockpile, but their operational usefulness will not differ significantly from those with American forces.

Under the strategic concept set forth above the provision of allied shield forces with nuclear weapons is clearly valid. There is no prospect of building purely conventional forces large enough to accomplish the necessary deterrent mission. In any case, they could hardly be left exposed to attack by Soviet tactical nuclear weapons without any means of retaliation.

The open issue in this area is the question of warhead control. In part, the NATO

stockpile arrangement results from limitations in our atomic energy legislation, which in turn reflects a vestigial Congressional nostalgia for the long-past days of the American atomic monopoly. Unless blocked by general international agreement, the spread of atomic weapons technology to additional countries automatically will alter this one-sided system. Meanwhile, if some means could be devised of internationalizing the guardians of the stockpile under SACEUR's command, there might be a psychological gain. On the other hand the present system is not technically disadvantageous, and it does ensure the continued American presence in Europe and intimate association with European forces, to this extent serving as an integrating factor.

Nor should the contribution of the shield itself to the "grand deterrent" be underestimated. Even if its nuclear weapons are only of limited range, their ability to wreak havoc on the Soviet Union's best military forces is not a negligible deterrent factor. Moreover, the early warning and communication systems required to make the shield force operational also serve as part of the strategic system which protects North America.

This brings us, then, to the question of control. Here the argument is made that the United States may become unwilling to employ strategic retaliation against anything but a direct attack on the home country. In this view, despite the direct involvement of large American ground and air forces, even an all-out Soviet nuclear assault, if limited to Europe, might fail to evoke an American strategic response. In any event, it is claimed the likelihood of such retaliation becomes less as the vulnerability of the United States increases, and the Soviets might, therefore, miscalculate our willingness to retaliate. If this is so, the only way to ensure a strategic deterrent is to place retaliatory weapons under the unilateral control of

nations to whom the attack in question would be an all-out matter justifying all-out retaliation. This theory certainly played some part in the British decision to develop their own hydrogen bomb, and it appears to be an element in the current French desire for an independent atomic capability. Proponents of this argument concede that no individual European nation could visit catastrophic destruction on the Soviet Union, but claim that each could do enough damage to make an attack on it too costly from the Soviet viewpoint.

Too Many Triggers

An intermediate view is put forward in Mr. Ben T. Moore's *NATO and the Future of Europe*. He accepts the thesis of decreasing likelihood of American retaliation to a Soviet attack limited to Europe, but opposes individual national European control of retaliatory weapons on two grounds: that it would put nuclear triggers in too many hands, and that, in any case, individual national resources are too limited to provide truly effective deterrents. In his view, while Atlantic political cohesion is insufficient to ensure a credible nuclear response on an all-for-one basis, there is sufficient European political cohesion, at least among the six continental members of the Common Market and Euratom, so that a pooled European strategic nuclear defense force would provide an effective deterrent.

While there is a superficial plausibility about the notion of independent deterrents in the hands of every threatened nation, it suffers from an overwhelming defect: it is inherently divisive and it greatly underestimates the deterrent effects of the alliance as such. It would advance the Soviet aim of separating Europe from America and would invite blackmailing tactics based on the enormous disparity between Soviet power and that of its European opponents. The current Berlin crisis is a timely reminder of the indispensability of

European-American unity in the face of constantly growing Soviet power. Moore's prescription has the disadvantage, apart from legitimate doubts concerning his appraisal of European political cohesion in this context, of excluding a number of orphans who are European NATO members but not members of the "community of six." Their isolation and subversion under Soviet blackmail would be a most serious danger to Western interests.

Joint Control of Weapons

It follows, then, that some form of joint NATO control of strategic nuclear weapons in Europe, parallel with the arrangements for tactical weapons, must be maintained. Formidable legal objections can be raised to this proposition. In a coalition of sovereign states, it is often argued, there can be no intermediate arrangement between purely national control and control by committees in which each member has a *liberum veto*. But the whole evolution of NATO's military structure under the Supreme Allied Commanders for Europe and for the Atlantic is a standing refutation of this legalistic view. A collective delegation of control over instruments of strategic retaliation is admittedly a harder political decision for NATO members than a similar delegation respecting tactical field forces. Yet the principle is the same, and if this is the best way to obtain maximum deterrence at minimum cost, it should not be impossible to implement. Nor should it be assumed that the deterrent effect of such weapons, once in place in Europe, will be affected critically by Kremlin theorizing as to which fingers can press the buttons legally.

There are also logistical and economic considerations in favor of NATO wide cooperation in this field. Given the over-all limitation on resources collectively available for defense, there is surely no advantage in building up competing European and American nuclear weapon and ballistic missile industries. Pooled European

production of certain components or weapons specialized for use in Europe may well be in order, but for new weapons suitable for use on both sides of the Atlantic and being produced in any event in the United States, it would be far more economical to arrange some additional marginal production for European needs than for Europe to build up independent industries. The West European gross national product, even including the United Kingdom, is now only 250 billion dollars; that of the Soviet Union and her satellites is already 230 billion dollars and is growing more rapidly than the West's. In face of the relative growth rates and the democratic restraints on diversion of resources to defense, economy within the Atlantic Alliance as a whole is essential.

The underlying issue concerns the continued cohesion of the Atlantic Alliance in the face of growing Soviet power. That power has provided the cement for NATO in the past; as the power grows, should the cohesion be loosened or strengthened? If the American interest in the security of her European allies remains vital, the United States cannot really escape accepting a continued risk of devastation as a means of deterring an all-out assault on Europe. It must be borne in mind that the willingness to accept such a risk is a product of three factors: the importance of the objective; the magnitude of the risk; and the probability of the event. In this case, the objective remains vital; the risk is increasing in magnitude from year to year; but the probability of a Soviet attack on Europe can be kept minimal if the NATO shield strategy is fully implemented and maintained. For the allies on both sides of the Atlantic this is a far safer course than a strategy splitting Europe from America.

Disengagement?

A proper discussion of another issue—some form of military disengagement in Europe—would require an article in

itself. Moreover, it would be out of place, since we are concerned here with policies which are capable of being negotiated among allies and friends rather than with dreams which have no present prospect of being negotiated between enemies. The many schemes which have been advanced in recent years and which are well canvassed in Michael Howard's booklet, *Disengagement in Europe*, all involve either an inadequately compensated and, therefore, totally implausible Soviet withdrawal from Eastern Europe, or a totally unacceptable complete withdrawal of American power from Western Europe. It is well to discuss such ideas in academic circles in anticipation of a time when some kind of common ground might be found, but it would be folly to permit academic discussions to delay allied action in securing our common defenses.

The essential difficulty with proposals for disengagement which makes them inherently destabilizing is the problem of control and supervision of any neutralized area and uncertainty as to the reaction to any violation of its neutrality. Violations would be hard to detect and even harder to deal with. In the Austrian case, where disengagement and neutralization involved no change in the already existing regime, these problems were not insuperable. But in East Germany and the other European satellite nations, disengagement carries the inherent implication of revolutionary change.

The position is grossly asymmetrical, since the regimes to the west of the Iron Curtain are in fact representative and democratic, while those to the east are maintained by local force backed by Soviet force. It is unbelievable that the East German regime could survive the withdrawal of Soviet force; it is unlikely that the Hungarian could; and the days of the other satellite regimes would seem to be numbered without immanent Soviet military protection.

As to intermediate ideas of partial thinning out of forces, such as the Rapacki Plan for a denuclearized zone or the augmented proposal for coupling this with a thinning out of conventional forces, there are all the disadvantages to the West of undermining the NATO shield strategy and weakening our ability to avert a *fait accompli* in the western part of the area without significant compensating advantages.

On the other hand a modest and perhaps very useful alternative, contemplating a zone of mutual inspection and overlapping radar screens, possibly covering the same territory as that suggested in the Rapacki Plan, might indeed be acceptable and genuinely useful for both sides. A proposal of this type would be a proper part of negotiations on the prevention of surprise attack; it would reinforce—rather than weaken—the strategy already outlined, and it would give concrete evidence to the Soviets of the purely defensive character of that strategy.

The US as a European Power

For the United States, the basic issue which permeates all these discussions is whether our military association with Europe is a mere temporary aberration, arising from the combination of European economic weakness in the late 1940's with a passing need for overseas bases for medium-range aircraft, or whether that association reflects a real and lasting community of interests as durable as the Soviet (or Sino-Soviet) threat which called NATO into being. Kennan's instinct is clearly to look for a withdrawal of American power from Europe on the grounds that the United States is not a European power. Ben T. Moore, likewise, argues in effect that a better-integrated Europe should come to take care of her own defense, coupled in a very loose partnership with her trans-Atlantic allies. To my mind these attitudes are profoundly mistaken. The increase in Soviet capabilities and

self-confidence, the continuing shrinkage of distances, the political and economic revival of Europe, and the growing complexity of weapons technology should serve to reinforce the Atlantic Community of interest and the case for even closer military integration within NATO as a whole.

In specific terms this question bears on the continuance of military assistance to Europe and the continued stationing of American forces there. Why, it is often asked, does American military assistance to Europe continue in the face of Europe's spectacular economic recovery? The answer is simple. The fact is that such assistance has been reduced substantially, and its proportion to Europe's own defense efforts has become progressively smaller. Great Britain and Germany, for some years, have been paying cash for any arms supplied from this country, and when the Algerian problem is resolved somehow, France should be able to do likewise. This leaves the main dollar cost of continuing military assistance directed to Greece, Turkey, Italy, and Portugal, whose economic base will be inadequate for a long while to come, and to the Scandinavian countries, where small populations are responsible for large areas of great strategic importance.

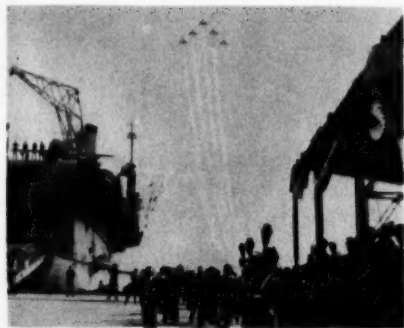
As to the stationing of forces, so long as adequate strategic reserves are maintained in this country for unpredictable brushfire outbreaks in any part of the world, it should be regarded as an advantage rather than an aberration that the NATO alliance permits us to have a portion of our ready forces constantly at the frontline in by far the most significant region of the world bordering on the Sino-Soviet bloc. This does not suggest for a moment that we should be doing Europe's defensive job, and it is a heartening sign to see a substantial German contribution to NATO defense finally coming into being after many years of frustration and

delay. The challenge, which poses no mean task of leadership and negotiation, is to make the allied efforts complementary and additive rather than alternative. Apart from their strictly military role, the political and psychological value of these American forces in serving as a daily reaffirmation of the cohesion of the alliance is a Western defensive asset of enormous value.

Conclusions

Is there any end in sight to the costly prescriptions for strategy suggested above or to a European *status quo* which gives great cause for satisfaction west of the Iron Curtain but is painfully unsatisfactory on the eastern side and which certainly contains some precarious elements of instability? In the short run, the simple answer would appear to be "no." Why should we look for favorable change in a period when Soviet power—economic, military, and technical—has been advancing far more rapidly than that of the West and when Soviet political influence has been penetrating to hitherto untouched areas? These are scarcely conditions conducive to an open Soviet recognition of their abysmal political failure in Eastern Europe.

We in the West must hope for an ultimate recognition of this failure as a consequence of domestic strains and changes, increasing comprehension by the Kremlin of the genuinely nonaggressive intentions of the West, and appreciation of the fact that non-Communist regimes on the Soviet borders are not necessarily a threat to the Soviet regime itself. If this takes as long as for "shrimps to learn to whistle," we had best simply reconcile ourselves to that fact. But if there is any hope of advancing that day, it surely lies in the calm and resolute pursuit of a collective strategy which is well within our means, which is less costly than any visible alternative, and which is far less dangerous.



Italian jets salute delivery of the millionth ton of MAP materiel to Italy's forces

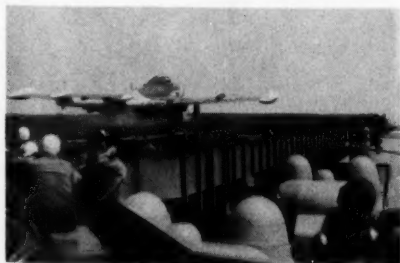


Turkish NATO forces man United States-made tanks in defense of the alliance



US Army Photo

Officers of 15 nations attend classes at the NATO nuclear weapons course in Oberammergau, Germany



US Navy Photo

British aircraft is catapulted from deck of United States carrier



Norwegian infantrymen of a 4.2 mortar crew during winter exercises



Above, French recruit receives bazooka training with the 501st Tank Regiment at Rambouillet, France, near Paris

Below, Belgian officers receive a briefing on the jeep-mounted 105-mm rifle from a US Army sergeant of the United States Army, Europe Ordnance School



Above, officers of the Netherlands Army and Air Force inspect a United States *Patton* tank in Western Germany

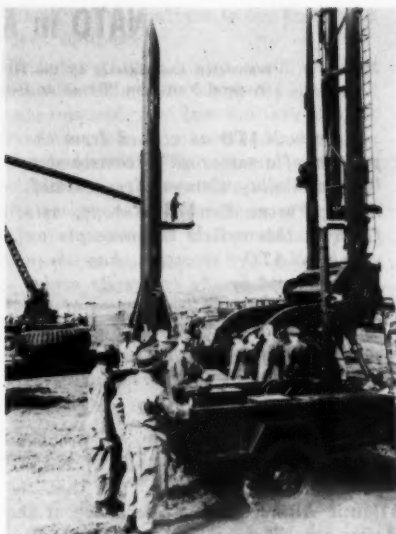
Below, Greek soldiers stand at parade rest during an inspection; Greece joined the alliance in 1952



*Air Force Photo*

Above, German Air Force officers complete a radar approach control course at Spangdahlem, Germany

Below, Italian officers and other ranks receive training with the *Honest John* missile near Vicenza, Italy

US Army Photo

Above, NATO Defense College students are briefed on advanced weapons during a field trip in Germany

Below, Danish armored reconnaissance patrol halts during NATO exercises near Willingrade, Germany

SHAPE Photo

NATO in Atomic Times

Translated and digested by the MILITARY REVIEW from an article by General Valluy in "Revue de Défense Nationale" (France) July 1959.

Here is NATO as viewed from the position of a senior allied commander. General Valluy, Commander in Chief, Allied Forces Central Europe, sets forth in this article the concepts on which NATO strategy has been founded, and briefly traces its evolution, highlights the weaknesses of the alliance, and the threats it must be prepared to face; finally, he sets forth his evaluation of its current needs.—Editor.

FOR a number of years atomic problems have been confused with those of NATO, and the impression has spread that the Atlantic Alliance is a consequence of the atomic era. There should exist, therefore, a natural and perfect adaptation from one to the other. No question could arise in NATO because of the atomic era.

The contrary is true. NATO—far from being at ease in the atomic atmosphere—experienced much difficulty in adapting itself to it. This atmosphere has, in fact, provoked a very real crisis that thus far has not been overcome.

Founding of the Alliance

The Atlantic Alliance was signed on 4 April 1949 and its 10th anniversary has been celebrated recently with all the desirable fanfare.

Following the troubles that had been incited by the Communists in Greece, the annexation of Czechoslovakia, and the Berlin blockade, the West realized the danger that the politics of Russia represented to its safety—a Russia whose military power scarcely had been reduced after the cessation of hostilities. Only a defensive military alliance that was as strong as possible seemed capable of re-establishing the equilibrium.

At that time, the world had only begun to realize the important role that the atom was to play in the life of nations. When it was created NATO appeared to be strictly a classical and conventional alliance.

However, the alliance presented some profoundly original features which set it apart from the traditional systems of defensive groups that had been known up until that time.

The United States belonged to it. For the first time in her history, she participated in peaceful times in a military alliance and committed herself formally on the European Continent.

Eleven—soon 14—other nations subscribed to it. Thus it is the largest military alliance ever. Geographically, an almost uninterrupted continuity was achieved across Europe along the Iron Curtain.

Above all, the Atlantic Alliance created an international political and *military* organization in time of peace, called up in the name of the member nations and invested with a sort of executive power with very far-reaching authority.

As far as military affairs are concerned, this organization was charged essentially with military planning and the readying of forces. It was the first time that a truly interallied command had been created except under the pressure of war. At once the results proved remarkable, particularly in the fields of training and the standardization of procedures.

NATO also had the task of determining the common needs and—based on these requirements—the degree of participation by individual nations.

From the outset, the defense of Europe by conventional means was considered

feasible—provided that about 50 modern, crack divisions could be made available. This estimate, which was proposed at the Lisbon Conference of 1952, might appear to have been modest. Doubtlessly, it was based on the appreciation of the immense difficulties which the Russians would have in contending with Western Europe due to the length of the lines of communication and the fact that they would have to operate across satellite countries of questionable loyalties.

This estimated military force requirement was unanimously and promptly judged excessive. The common opinion was that the effort would alter the economy and the social and political cohesion of the NATO nations, thus playing into the hands of the adversary.

Therefore, even before entering the race NATO felt "out of breath."

It was at that point that the development of thermonuclear bombs and the recourse to the "deterrent" offered a solution that appeared to be providential to all concerned.

The Concept of Deterrence

The thesis of the deterrent has its origin in the United States. It was first presented as a consequence of the "new look" for the Armed Forces.

The Korean war, waged only with conventional weapons that had been left over from World War II, had caused acute uneasiness in political and military circles of the United States. At first the American forces were almost expelled from Korea, and were able to maintain themselves only at the cost of considerable effort, time, and losses. In spite of their superior armament and the quality of their troops and commanders—all of whom had very recent combat experience—and in spite of better and more aerial bombardment, they felt at a disadvantage in the face of the Chinese. The Chinese divisions, although solid and well-trained, were, nevertheless,

"cheaper" in comparison to the units with modern equipment.

Thus the United States could see that the considerable sums which she continued to appropriate for her military budget were inadequate to guarantee success even in an undertaking that should not have amounted to anything more than a simple police action. A radical reform of her military system seemed to be mandatory.

Two paths were open. The first, which was mainly advocated by the Army, consisted of strengthening the forces of intervention by equipping them, down to the lower echelons, with more modern and effective weapons including tactical atomic weapons. This solution implied a radical change in the direction of atomic research and a far-reaching reorganization of the ground units. This was rejected.

The other solution, favored by the Air Force, called for continuing the development of long-range launching means and thermonuclear projectiles of increasing yield. The reasoning behind this was that once the United States had sufficient means to destroy, in a few salvos, the essential part of the economic power and most of the vital centers of Russia, that country could not afford to provoke war.

This is the theory of the strategic deterrent or the power of persuasion.

The Pentagon accepted this theory with reticence under pressure of political forces who saw in it an easy way to avoid costly conversion, to realize an appreciable reduction of men in the Army; in other words, to buy themselves a good budgetary conscience.

The theory met with very favorable echoes from the other Atlantic Alliance countries because it gave them a seemingly valid excuse to refer their safety to the United States. The deterrent, with its modernistic air, permitted dodging the big bills that had been presented at Lisbon. The role of the forces stationed on the Continent could, henceforth, almost be re-

duced to an alert or warning screen to the strategic forces. Large standing armies or costly armament were not needed. The tripwire was enough from now on.

This solution made easier the rebuilding of the economy of the European countries which was considered so necessary to the cohesiveness of the alliance. According to the recent memoirs of Field Marshal Montgomery, it was forgotten that "economic strength without military power was idle" and that NATO's aim was to improve the common defense and not to increase the material prosperity of the association.

Under the protection of the deterrent, several years went by in relative security. Then it was noticed that the Russians were overrunning the solid defense position that we had achieved. They did this in two ways. First, by turning our position by new threats no longer directed against the heart of the West in zones which NATO had proclaimed to be of vital interest, but indirectly applied in points not expressly covered by the alliance. This threat varied from purely political or economic action to subversion and the sending of weapons and "volunteers."

Second, they challenged directly NATO's progress in the sphere of rockets and missiles.

In this way, the absolute character of our deterrent was toned down, while Russian threats became more diversified and always directed toward world domination. NATO then became aware that it was partly disarmed and that Western Europe was protected only by the strategic deterrent and the tripwire. It was exposed to all kinds of nibbling on the part of the enemy.

There could be no question of renouncing the deterrent once we had come this far. The race was on and only by a general, sincere, and controllable atomic disarmament agreement could it be possible to turn back.

The Shield

It was necessary to complete the task that had been started. Europe had to be protected quickly with something else other than a simple alarm system. This "something else" was the air-ground shield equipped with tactical atomic weapons.

This conclusion partly vindicated those officers who, in 1954, thought that the race to produce large thermonuclear weapons inevitably would lead to a stalemate. But soon it was seen that the shield—at least as far as the continental countries were concerned—was not Utopia either.

The shield concept, which was worked out at the end of 1957, revealed two weaknesses when it was examined under a magnifying glass by the European countries.

The first weakness was that no NATO country other than the United States and Great Britain had tactical atomic weapons. If these weapons were to constitute an essential part of the shield, the Anglo-Saxons would have to agree to furnish them to their allies by removing certain restrictions for their use which would destroy their technical efficacy. Indeed, all ammunition should not remain under the exclusive control of the United States military authorities until the last minute, for it can be seen what hazards this would constitute on the modern battlefield.

The second weakness of this system was the probability that the battlefield would be the most populated and industrialized area of Europe. Regardless of how much care was applied to the choice of objectives and weapons, it would be difficult to avoid serious devastation. The fight had been returned to the battlefield but that battlefield was "at home."

Thus after the final failure of the deterrent the theory of the shield was, in turn, contested. NATO had not yet found its way and the crisis still was not resolved.

What was the solution? It does not lie in relaxing our efforts to have an effective

retaliatory force available at any time which is both powerful and modern. The fundamental deterrent—a complex system of arms and vectors that can be put into operation instantaneously—must remain the basic armament of NATO. Deterrence is our best trump card for the avoidance of war and for the defense of our respective countries, but it is a path of no return.

Blackmail!

On one hand, no politics can be based on the use of a single weapon unless it is to run the risk of suddenly being stricken with impotence. On the other hand, when this sole weapon has the immense power of our deterrent, it may leave us disarmed in a number of circumstances in which the true nature of enemy intentions cannot be determined immediately.

Since nuclear competition is composed of alternating success and failure, we cannot but fear that in a moment of temporary superiority the Soviets will use demonstrations, pressure, encroachments, border incidents, traffic restrictions, *blackmail*, and even force to gain promises or diplomatic victories.

The Berlin affair is, as a matter of fact, one of these attempts.

This is what we call limited conflicts—those that remain limited in the plan of the agitator and which do not bring about the recourse to an all-out war. "Limited" is then opposed to "total" and it must be well-understood that limited conflict does not mean submission. On the contrary, it requires an appropriate attitude of resistance. We want to avoid total war by all means that are not prejudicial to our honor. We wish to delay it for as long as possible to permit us to sound out the enemy's intentions. If a minor aggression occurs, we must have the necessary and sufficient means to face the aggression locally. Politics can but then congratulate itself that it is not required to authorize

the immediate outbreak of mutual extermination.

In common with all blackmail, the better we are prepared to resist it judiciously, the less the adversary will try anything; inversely, the more we will appear to be temporizing, either voluntarily or because we are forced to, the greater will be the concessions forced from us.

The Current Need

There no longer exists a recipe for a "master key." We find ourselves in need of multiple and small deterrents fitted to each type of threat—a series of telescopic deterrents that constitute a kind of preambular exploration of the enemy's intentions. These must have the most retaliatory character possible in order to support the preventive political objective.

The search for a new strategy corresponds, of course, to the natural desire to diversify and amplify our means of action. It bears no prejudice to the basic weapon.

We cannot concentrate our efforts *solely* on the basic thermonuclear weapon, thus pretending to revert to the brief but golden era of 1950 to 1955 when our margin of superiority was such that it prevented all notions of aggression.

Are we in a position scientifically to remain not only at the same level of technological development with the Russians, but to surpass them and to assure that they fear total war more than we do? It is doubtful, since we have not yet succeeded in pooling our means of research.

In the local incidents and in the small conflicts at specific points, it is other than thermonuclear weapons that play a decisive role.

Essentially, true peace politics consist of obtaining before the enemy an equilibrium in *all* spheres and on *all* levels; all spheres, because the political, economic, and psychological means must be envisaged as well as the military means. These can be preponderant at times. However, they

are not the determining factor in all cases and at all times.

What is important is that we be ready everywhere and in every respect. In the poker games that are likely to take place, our negotiators must have the maximum high cards in their hands and they must not be vulnerable to the heavy betting of the adversary. It will even become necessary to prevent the adversary from playing—to forbid him all opportunities to play.

One does not react to pinpricks or taunts with revolver bullets knowing that the enemy could deal us a deadly blow before succumbing. Therefore, not only is the progressive deterrent worth striving for, but it is indispensable to our strategy.

At the same time we are engaged in the preparation for a thermonuclear conflict, we are forced to anticipate and to prevent conflicts in which we do not have the initiative. To demonstrate that we are perfectly capable of engaging in total nuclear, as well as in any other form of warfare, is an essential corollary of our over-all dissuasive power.

NATO's Weaknesses

The entire problem is contained in one single question: Why is it that the NATO countries, with a military budget that is equal if not greater than that of the USSR, are not able to have forces at their command that are on a par with those of the Soviet Union?

In contrast to the Soviet continental unity, NATO is handicapped by its diversity and by the geography of the "Atlantic moat" that separates the principal source of power from its point of application.

Not wanting to be the aggressor, the alliance is compelled to create a perma-

nent defensive force that is costly but which will afford protection on a more or less continuous and worldwide basis.

Certainly, socially speaking, the countries of NATO do not wish to compromise their internal political and economic stability. They are very sensitive on this last point and very alert to possible degradation.

However, many among us remain convinced that our inferiority stems in large part from the fact that the military effort is not exploited to the fullest extent and that it is not being used in a rational manner.

Not every citizen within the member nations has taken cognizance of the true facts. The forces facing the Western World are 20 modern—tomorrow atomic—divisions. These can be tripled discreetly and can be supported by 4,000 planes at 150 kilometers from Mainz, less than 500 kilometers from Brussels, and 600 kilometers from Paris.

Inside the Atlantic Community the individual countries have not succeeded in transcending their peculiarities in adopting the most economic formula for the synthesis of international power.

These formulas can be fully applied only if these steps are taken within the framework of the coalition. That which is true in strategy is equally true in organizational and structural matters. NATO demands more than a periodic devotional ritual.

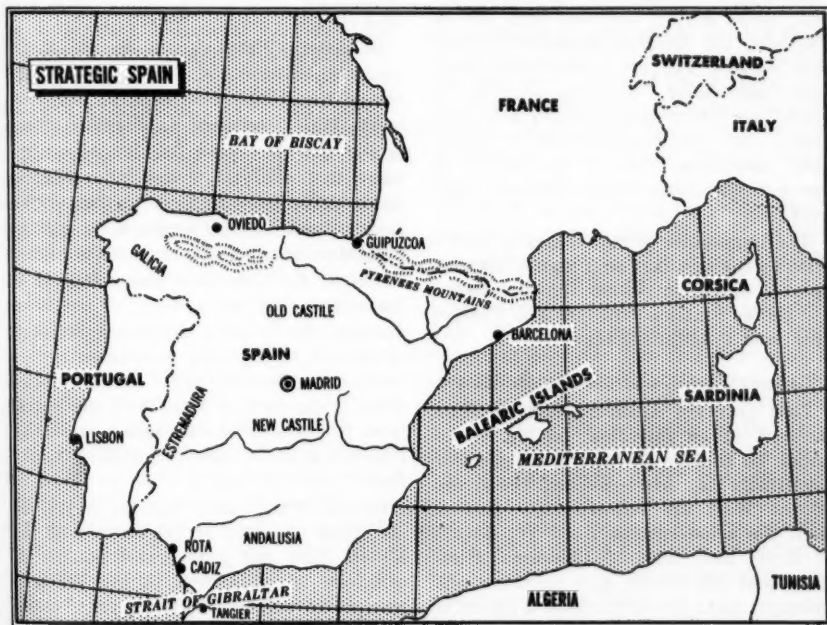
Of course, the political climate can change. Today, we are obliged to recognize that we endure events, but we do not create them. In wanting to keep everything, in economizing on civil and military budgets, we risk losing everything.

Spain's Place in the West

Translated and digested by the **MILITARY REVIEW** from a copyrighted article by
René Grandchamp in "Revue Militaire d'Information" (France) July 1959.

Spain, a candidate for membership in NATO, has in recent years devoted most of her attention to internal problems. These problems, although not completely solved, are now being overshadowed by her new awareness of common interests with the other na-

Mr. AVEROFF, Minister of Foreign Affairs of Greece, recently declared that the "Mediterranean Agreement of which there is so much talk actually has no reason to exist at all." Such an agreement between Spain, France, Italy, Greece, and Turkey is not necessary since four of its countries



tions of the Western Alliance. This article discusses Spain's strategic significance to the West as seen by a French author. It emphasizes her geographical, political, and economic ties with the countries of NATO and provides an insight into her internal affairs as they affect her candidacy for membership.—Editor.

are already allied to each other by virtue of the Atlantic Alliance and the fifth, Spain, is a candidate for NATO.

In spite of this statement it is likely that exchanges of views between the governments of the Mediterranean countries are taking place on the subject of regrouping and reinforcement of their common defense. The Soviet pressure on the

Middle East, of course, causes them serious anxieties. Greek diplomacy—among others—has undertaken the task of reducing the divergencies among the governments concerned. The government of Madrid recently has taken an increasingly active part in the evolution of the defense politics of western civilization.

In April of this year Mr. Menderes, Prime Minister of Turkey, accompanied by Mr. Zorlu, his Minister for Foreign Affairs, made an official visit to Spain. A "treaty of perpetual peace and friendship" was signed during this visit with Mr. de Castiella, the Spanish Minister for Foreign Affairs. The two governments have proclaimed their "complete identity of views" on international affairs and have stated that the Spanish-Turkish friendship constitutes "one of the pillars of peace and stability in the Mediterranean area."

The importance of this treaty is underlined by the fact that on 5 March bilateral defense agreements were signed between the United States on one side and Turkey, Iran, and Pakistan on the other.

General Franco and the Middle East

Last year the Spanish Chief of State declared in an interview for the newspaper *Ya* that as far as the problems of the Middle East are concerned, the errors of the West are unfortunately greater than the achievements. . . . The events in Korea and those of Indochina, Hungary, and the Middle East highlight one principal fact: the existence of a powerful nation which retains other nations against their will, which it occupies politically and militarily.

Franco said that the USSR permanently threatens peace by conspiring against the internal order of other peoples, using any and all means, taking advantage of all occasions to provoke subversion. He thought that this continuous activity from the outside on the part of the adversary should

not, however, lead us to lose sight of the internal conditions that contribute to its success: the economic and social state of affairs of many nations, the degree of hardship, and the low living standard of many peoples.

A general eagerness for economic progress and betterment of the living standard pervades the people of the Middle East. Tired of waiting, they demand effective action. Soviet Russia really threatens their independence, but the failure of the West to understand them pushes them into Russia's claws.

In General Franco's opinion, an understanding between the West and the peoples of the Middle East must be based on trust. It is necessary to convince these people that the West has indeed an interest in their freedom and independence. Contribution must be made to their living standard and to their progress. In dealing with them it is necessary to show understanding, fairness, and generosity. It is lamentable that the interests of the West and the Middle East, which are, in fact, complementary, should sometimes appear to be opposed to each other. The European West is the natural market of the petroleum products of these peoples. It is Europe which lends value and vitality to the Suez Canal.

General Franco said that the raising of the living standard of the nations of the Middle East and a favorable market of exchange is of interest to the Western Nations as well. . . . It is for that reason that it behooves us to revise the situation, to cause general interest to triumph over that of individuals. Thus we will avoid providing a basis for Communist propaganda, he concluded.

The signing of the Spanish-Turkish Treaty proves that the interest that Spain bears all of the Arabian world has not lessened since the advent of the new regime.

Spanish-American Military Agreements

General Barroso, Spain's Minister of National Defense, visited the United States in October 1958. At that time he presented a far-reaching program for the modernization of his army for the purpose of adapting it to modern methods, lending it greater flexibility, and adjusting it more closely to the needs of the over-all European defense. Welcoming the Spanish Minister, Mr. Wilber Brucker, America's Secretary of the Army, said that Spain is considered to be one of the strongest anti-Communist countries of Europe. He lauded the cooperation of General Barroso in the application of the military aid program.

General Barroso's presence in Washington has brought into the foreground a problem that preoccupies the American High Command—that of strategic bases in Morocco. Certain observers fear that the authorities of Rabat—although they try to be conciliatory—are under excessive pressure from the extreme wing of the *Istiglal* and that it is difficult for them to resist.

The Moroccan bases are important in the strategic network of the United States Air Forces and in the defensive structure of NATO. Four of these bases cost over 500 million dollars and are exclusively air-bases; the fifth is of great strategic value for joint air-naval operations. The difficulties that have been created by Morocco have pointed up the strategic value of the Spanish bases and the moral value of the Spanish-American agreements of 1953. As long as the intercontinental bombers of the Strategic Air Command constitute a major striking force of American defense, the possession of Spanish bases will be of considerable importance in the structure of Western defense.

General Barroso was given a guarantee that military aid from the United States would continue. He convinced the American military chiefs that his country could make very real contributions to the de-

fense of the Western World. The general underlined the importance of the Canary Islands and referred to a declaration by Winston Churchill made during World War II. He said, "the protection of West Africa is essential and Spain has an important role to play in the defense of the West not only as a strategic airbase but also to assure the protection of Gibraltar."

Considerable American aid was required in the initial phase of modernizing the Spanish Army, during which it was planned to outfit divisions with modern equipment and weapons. American military authorities were of the opinion that the assistance for Spain was more necessary than ever in view of the strategic importance of the country. An atmosphere of mutual trust has been established between the military authorities of the two countries.

General Barroso was of the opinion that it would be good to reduce the size of the basic units of the Spanish Army in order to give them additional mobility, and to increase their firepower and the range of their air-ground communications. This meant actually less men and more weapons, more flexibility and autonomy, to quote an American formula. "Once we have organized the units according to the first phase of our plan," said General Barroso, "we will then have at our command the necessary nucleus which will serve as the pattern for the entire army. Our organization will resemble the American pattern. For this we will count on the active collaboration of the Pentagon."

The cost of transforming the Spanish Army into a force of the "pentomic" type was evaluated at 100 million dollars. The basic unit will be the battle group, a military force consisting of five units and provided with atomic firepower. The pentomic division is composed of five battle groups for a total of about 13,700 men. The old division consisted of three regiments of 17,000 men. The Spanish Army num-

bered 200,000 men and consisted of 17 divisions. Two further divisions were stationed in the islands and there were 35,000 men in Morocco.

By virtue of the agreement that was signed by the United States in 1953, and valid for 10 years, Spain has received tanks, small arms, ammunition, and jet planes. The Spaniards themselves have produced an automatic rifle and, at the end of 1958, their air force consisted of eight F-86 jet squadrons, one squadron of F-100 jets, and 22 DC-3 cargo planes. The United States has helped Spain to modernize her navy within the framework of a 25 million-dollar aid program. Electronic equipment was furnished to the destroyers and gunboats.

After having had prolonged conversations with General Franco, in February 1959 Mr. Cyrus L. Sulzberger, Editor of the *New York Times*, wrote several articles. He expressed himself as follows:

The United States relies heavily upon military facilities here. Three major airfields bring American medium bombers within easy striking distance of the USSR. The new naval base at Rota provides our Sixth Fleet with its first adequate home port in the Mediterranean area.

Therefore, it should comfort the Pentagon that Franco envisions this as a long-term commitment. He says he will insist that any successor regime continue it. And he hints at eventual readiness to expand its scope by accepting long-range missile ramps. 'Missiles will be the Artillery of the future.'

Mr. Sulzberger continued:

That is no problem. Both our governments agree on how bases would have to be employed. Our interests are the same.

Clearly, one is meant to deduce from these assertions that Spain considers herself our ally for the indefinite future, even if such an alliance is indefinitely stated. Such appears to be Franco's per-

sonal interpretation. And still, in this stultified political system Franco is Spain.

American Aid

Mr. Sulzberger recalled that the United States Air Force would have been content with bases in Northern Ireland, but that the navy had insisted on having a port near Cadiz. "We also wish to encourage in all sincerity," wrote Mr. Sulzberger, "the Spanish economy with help from the outside."

The importance which the United States attaches to economic collaboration with Spain is demonstrated by the amount of aid which has been provided. From 1 July 1957 to 30 June 1958 aid reached 214 million dollars, about 10 percent of the Spanish revenue for all of 1957. Aid will be continued in 1958-59, and it is generally expected that it will amount to about 50 million dollars to which there would be added the usual loans for the purchase of agricultural surplus. During the month of July 1958 the Spanish Government was authorized to negotiate a new loan of 13 million dollars, redeemable in 30 years, and carrying four percent interest if reimbursed in dollars and five percent if in pesetas.

Spanish Economy

Last April General Franco, speaking at Cuelgamuros, recalled that after the revolution that brought him to power, the most serious problem that imposed itself on Spain was the imbalance of payments which deprived her of the foreign currency so indispensable to the improvement of her economy. "Deprived because of the war of our foreign credits, we were reduced to our own resources," said General Franco. He continued:

We had to tackle the problem by producing on our own soil items that were of decisive importance with respect to our monetary balance. Government plans were concentrated on these items. Private enterprise was encouraged in the production of other products.

Operation on the basis of export entailed additional difficulties because our traditional export products were reduced to fruits and minerals. The agricultural production area was difficult to increase, and as far as the mineral sources were concerned, we have exploited our deposits for centuries. In spite of the difficulties, we were able for the first time to put new products on the world market that had been manufactured in Spain.

The fact is that, in the course of the last 20 years, Spain has experienced an economic development that is without precedent. The national revenue has increased 80 percent; individual income more than 50 percent in comparison to 1940, and there are 15 million additional Spaniards. The industrial production index has gone from 100 in 1940 to 235 in 1958. For basic products the mark is even higher than this average. The improvement in the living standard has been remarkable.

The climate and geography impose rather limited conditions on agriculture. Other than along the Atlantic border the water problem is crucial everywhere: "Water means life. . . ." say the Andalusians. One has only to travel in the south to be convinced of the truth of this saying. Half of Spain is either semi or altogether barren. Land in the dry zone yields only one-sixth as much as the irrigated zone.

As far as the soil is concerned, there is a predominance of old ground and much rock formation over vast stretches of land. Of the total of 50 million hectare only 20 million are cultivated. Relative high average altitude (it is second only to Switzerland in all of Europe) also limits production.

In spite of rather unfavorable natural conditions, half of the Spanish people derive their livelihood from agriculture or related industries. These 15 million farmers represent a working population of almost six million individuals.

The rural character predominates al-

most everywhere in Spain. Only the provinces of Madrid, Barcelona, Biscay, Guipúzcoa, and Oviedo have a majority that are not farmers. In Galicia, Extremadura, and New Castile, with the exception of Madrid, in Upper Andalusia, those who work the soil represent up to 80 percent of the active population.

The Spanish cultivation technique is characterized by two different agricultures—those of nonirrigated and irrigated land. Recent statistics make it possible to judge the respective extent of these two types of agriculture: the nonirrigated land corresponds to around 39 percent and the irrigated land to 3.3 percent. The landscape changes completely with irrigation and gives the impression of richness. No longer is there any question of pale yellow soil; all of the land is always cultivated and often yields two, and sometimes three harvests. This intensive cultivation furnishes Spain with her most precious products: oranges, early vegetables, and cotton. This type cultivation suits small tracts of land perfectly.

The economic equilibrium of the country is such that Spanish agriculture has a dual task: to nourish a population that mushrooms and to furnish export products that are necessary to compensate for the products that are being imported. The number of mouths to feed increased by 349,000 in 1957 and the industrialization program is vast.

The National Institute for Colonization has been charged with the agricultural transformation of Spain by the Minister for Agriculture. It transforms the dry zones into irrigated land; drains and cultivates the swamps; develops plantations; and divides and distributes the land between the agricultural workers. Finally, it builds new villages to house the farmers who are to work on the land that has either been transformed or improved. This activity on the part of the institute is spectacular and has completely changed

the landscape of certain regions. Pretty white villages seem to have popped out of the ground in one or two years' time.

Mineral production has undergone an uneven development. There has been a rapid increase in coal mining—16 million tons against seven in 1939. Production has remained inferior, however, to the prewar rate for metal minerals and in particular of the nonferrous minerals. In spite of the increase in iron metallurgy, the extraction of minerals is at a lower level than in 1929.

Contrary to this, manufactured production registers important results. Although development has remained limited in the traditional fields such as textiles, rapid increases have been made in basic industries, construction materials, oil refinery, and electricity. This has manifested itself in the creation of new industries such as the manufacture of automobiles. The automobile industry, which began in 1951, produced 30,000 units in 1957.

This development has occurred in a somewhat artificial manner. For reasons of national politics the state has played a fundamental role in the promotion of basic industries through the intermediary of independent public institutions such as the National Institute for Industry and even through direct investments.

The Iberian Bloc

There are a number of similarities between Spain and Portugal on the political, economic, and social plane. On the occasion of the 20th anniversary of the signing of the Friendship and Nonaggression Pact between Spain and Portugal in Lisbon, on 17 March 1939, the Madrid newspapers underlined the value of the Iberian bloc which "has permitted the two peninsular countries to maintain their neutrality during the last war."

The nonaggression treaty of 1939 was extended in 1948. If neither of the two parties denounce it, the pact is automatically renewed. It has proved itself to be

an effective instrument not only in the interests of the two peninsular countries, but also for the system which the West has deemed necessary to establish in order to protect itself against the strategies of Moscow. Spain's interests have become identical with those of the West against the tenacious Asiatic enemy.

The Portuguese Minister for Defense, General Bethelo Moniz, delivered an address in November 1958 in which he said:

The dual character of Iberia constitutes a major pawn on the complicated chessboard of Western defense. One would have to be shortsighted not to understand its impact and importance. We, the military, realize the impervious necessity to strengthen all that which guarantees peace, and we deplore the lack of understanding that still prevails and which has been an obstacle to the integration of Spain into the political framework of Western defense. However, Portuguese and Spaniards will continue to work side by side without fail and within the Iberian framework, always ready for a common effort and for all that can help us in the imperative of defending Western civilization, which is our reason to be.

The Continuity of the Regime

The chief of government's traditional message at the year's end to the Spanish people was characterized in 1958 by unusual length and by the particularly serene tone of General Franco. This speech answered the questions of the country and abroad concerning the political future of Spain. The Chief of State said:

The continuity of the regime is assured in the spirit that moves it and the person who guides it. The 12 basic principles of the movement became law last May. They will have to be respected in their entirety by the person called upon to succeed. Succession to the Supreme Magistrate of the State has been regulated by the Law of Succession. Before proposing to the Cortes (Congress) the name of his successor, the

Supreme Magistrate must consult the members of the Council of the Kingdom. If he disappears before having done so, this council is charged to designate at the assembly as King or Regent a person of the royal family who meets the conditions established by law. Thus nothing has been left to improvisation and no speculation of any kind is made possible on the transitory character of a regime that is—wrongly—dependent on the existence of one single man.

General Franco has also declared that a great number of the Spanish people do not attribute the true value to the institution of the Council of the Kingdom, which is an organism that has the decisive function with respect to the control of unity and of the continuity of the Spanish political life.

Article 4 of the Law of Succession determines the composition of the Council of the Kingdom which is a veritable synthesis of the Cortes. All the levels of the social, political, cultural, professional, and religious life of Spain are proudly represented in the council.

By virtue of Article 18 of its regulations, the Council of the Kingdom is entitled to make representations to the Chief of State when it deems it necessary on the subject of reform from abuse, of nonexecution of the laws, and all other measures that are judged prejudicial to the best interests of the Kingdom.

The problem of restoration has been answered firmly by a spokesman for General Franco who said that the traditional, catholic, social, and representative Monarchy is already in existence by virtue of the Law of Succession and the solemn promulgation of the fundamental principles. This Monarchy is incarnate today by the Caudillo (General Franco) who has established, with all the necessary prudence, the rules of succession to the Supreme Magistrate of the State.

In other words, while General Franco is alive, no member of the former reigning family will be called to the throne. The Spanish Chief of State himself has reiterated the necessity for any pretender to the Crown, to swear an oath on the fundamental laws of the regime.

The X-Factor in Arms Limitation

Digested by the MILITARY REVIEW from a copyrighted article by George Fielding Eliot in "Orbis" Fall 1958.

Economic health is essential to the political and military strength of nations. This factor is of serious concern to the NATO countries of Western Europe who, while developing and maintaining the military forces necessary for mutual defense, are concurrently involved in the development and expansion of production capability for consumer and capital goods. How much for each program is the pertinent question. To a country in this position disarmament is a golden promise. In this article Mr. George

Fielding Eliot sets forth the factors involved in disarmament negotiations with the Soviet leaders. The author is a competent professional military analyst and a frequent contributor of original articles to the MILITARY REVIEW.—Editor.

THE basic Western assumption underlying the disarmament debates of the last decade is simply that limitation of armaments by agreement, given reliable safeguards, would be a good thing for everyone, the Soviet Union included, and that

the problem of reaching agreement thus boils down to the attainment of the necessary climate of confidence by a careful step-by-step advance toward the desired objective.

Viewed through Western eyes, the benefits of an easing of the economic burden of armament and of escape from the psychological strains of the "balance of terror" are so obvious that it is easy for us to believe that the Soviet leaders, too, must desire to share in these benefits if only their suspicions could be allayed and their pathological distaste for alien inspectors in their country modified to the necessary extent.

Carried to its logical conclusion, this assumption presupposes that the Soviet leadership has created its present vast and growing system of armaments because of a genuine concern for national security against external attack. Hence it is argued, the dissipation of that concern by the gradual acceptance and implementation of mutual safeguards will result in a shift of emphasis from guns to butter in the USSR as well as in the West.

Western advocates of arms limitation thus are compelled, inescapably, to subscribe to a theory of Soviet purposes which has little support in the way of hard evidence. They cannot hold that the immense Soviet arms program is not designed as an instrument of Soviet policy. They cannot argue seriously for arms limitation at all unless they can persuade themselves that sometime, somehow there is a chance that the Soviet Union will accept—all at once or "step by step"—the minimum conditions under which substantive accomplishment can be combined with mutual guarantees. These conditions already have been spelled out fairly well.

Main Assumptions

If arms limitation is to continue to be taken as a serious objective of Western policy, its advocates are compelled to as-

sume that the aims of Soviet policy are, or can become, such that they can be reconciled with the scaling down of Soviet armaments and the establishment of safeguards which would:

1. Deprive the Soviets of the capability of surprise nuclear attack, thus easing the most severe psychological stresses of the "balance of terror."

2. Prevent any future increase in Soviet nuclear armaments.

3. Deny the Soviets the weapons systems (space-traveling ballistic missiles) upon which Soviet hopes for a growing margin of military advantage over the West are founded.

These would be among the results of the agreement supported by the four Western members of the United Nations Disarmament Subcommittee and subsequently endorsed by a considerable majority of the General Assembly, with only the Soviet bloc votes in the "No" column. Of course, these restrictions would also apply to the Western states. As Jules Moch, the French representative on the subcommittee, observed:

To be generally acceptable, any disarmament plan, either partial or comprehensive, must be such that each of the proposed measures tends to increase the security of all the contracting parties, and not only of certain contracting parties to the detriment of the others.

Acceptance by the Soviet Union of any such agreement, therefore, implies that "to increase the security of all the contracting parties" is consistent with the aims of Soviet national policy. From the strategic viewpoint, accomplishment of the changes noted above, together with the proportionate reductions in "conventional" forces which also form part of the Western proposals, would return the Soviet Union to her former condition of relative strategic immobility. Only a Soviet government genuinely committed to a policy of peaceful coexistence could accept such

terms: for, under them, peaceful coexistence would be the only policy that could be pursued with any chance of success.

To insist upon the immediate practicability of pursuing disarmament as a major Western objective is simply to equate Communist with Western motivations. A Soviet government which could accept and implement the Western disarmament proposals would, by so doing, be abandoning Communist doctrine and objectives. It would be transforming itself into a Russian government motivated by and responsive to the national interests of the Russian state. This is, of course, a pleasant prospect for Westerners to think about in wistful moments; but since, if it came to pass, it would mean the physical destruction of most of the existing Communist hierarchy, it is not likely to come to pass with their consent.

The life-essence of communism is conflict. That a Communist government would deliberately abandon conflict in all its forms as an instrument of policy is as probable as that the entire Soviet Presidency will file solemnly down the ramp of a jet airliner at London Airport tomorrow morning, take taxis to the Foreign Office, and apply for political asylum. Yet this undoubtedly would be the safest course for these gentlemen to follow if they were compelled to the conclusion that there was no way to avoid accepting the disarmament proposals of the Western Powers.

"Balance of Terror" and Soviet Objectives

If disarmament is presently an unattainable objective because it is inconsistent with the continued existence of Communist governments and, therefore, unacceptable to them on any basis which includes reliable safeguards, must we abandon the objectives of its proponents? Must we cease to hope that we, or at least our children, may live to see the life of the world move forward into the broad, sunlit uplands of Sir Winston Churchill's trenchant phrase?

The Soviets have created the "balance of terror" by their own efforts, for their own ends, but they do not intend it to endure indefinitely. The end purpose of their armaments program is to upset it—in their favor. As always, the military ingredients of their policy planning have been blended carefully with the political and psychological ingredients. They now foresee a developing situation in which, during the next few years, the Western Alliances will be progressively weakened under the stress of the shifting "balance of terror," until a situation of military imbalance has been reached which might even permit the final fulfillment of Lenin's alleged advice to postpone decisive military action "until the moral disintegration of the enemy renders the delivery of the mortal blow both possible and easy."

This view of Soviet purposes is, of course, wholly inconsistent with the idea that they could accept any disarmament proposals which could conceivably be acceptable to the Western Powers as long as the latter retain their freedom of choice. No doubt it will be considered by those who hold a more optimistic view of Soviet malleability an unreasonable and unprovable thesis, since it rests upon an interpretation of Soviet intentions.

The X-Factor in Western Analyses

Those who prefer to believe that a "change of heart" is taking place within the walls of the Kremlin invariably challenge the value of quotations from the works of communism's founding fathers as guides to the future policy of Khrushchev or his successors, because, if this be admitted, the happy dreams must fade. Colonel S. C. Vestal of the United States Army, writing in 1920 of those who then dreamed of world government, remarked a like phenomenon in *The Maintenance of Peace*:

This dream of a perfect society, this conspiracy to avoid a rational discussion of the subject, this voluntary illusion lies

like an alp in the way of useful progress. It is difficult to argue against a belief of this nature; for those who hold it deny the validity of history as a guide for the future.

Never has the validity of history as a guide to the future been more extensively, indeed passionately, challenged than since the dawn of the atomic age. Everything is changed, we are told. The old maxims are worthless. The principles of war—which are the distilled lessons of experience—have no application to the terrible problems of the present, much less of the future. These arguments are often a preface to “new” proposals for setting the world aright and dispensing with the dangers inherent in the existence of atomic weapons, or Communist governments, or both—proposals which, subjected to the test of history, could not be supported.

Nevertheless, if plausibly presented, such ideas—of which disarmament is a prime example—are more readily and widely accepted, by far, than factual analysis which bolsters present knowledge by the hard-learned lessons of the past and seeks to peer cautiously a few yards into the fog of the future. Unhappily for us, the Communists have a great respect for history. They cling to a Marxian interpretation, it is true. This, nevertheless, is a far more useful guide than spur-of-the-atomic-moment improvisation. Understanding of history, at any rate, has inspired in Communist power centers a single-minded concentration of energy and of resources toward the achievement of objective which the West has not yet matched.

The Soviet military program affords an excellent illustration of this point. It suggests, also, that the means by which the West must seek appropriate countermeasures are to be found not in trying to persuade the Communists to abandon their purpose, but in measures designed to convince them that they cannot attain it. An objective analysis of the Soviet arms pro-

gram would, indeed, by itself go far to convince any experienced observer that the Soviet objective is and can be nothing less than the attainment of a monopoly of power on a worldwide basis.

Perhaps for this very reason this category of evidence has hitherto received little attention in Western analyses of disarmament prospects. Such analyses, however closely reasoned on the political side, only too often are marked by vagueness or even distortion in their military estimates. The latter usually emphasize the horrors of nuclear devastation and the number of casualties which might be expected if a 20-megaton bomb were exploded over the exact center of Chicago's Loop. They give very little consideration to the weighing of risk against advantage which must precede a Soviet decision to deliver such a bomb and which must inform our own military planning directed toward making certain that the anticipated advantage will always be outweighed by risk factors amounting to grim certainty.

So far as published—and especially official—discussions of disarmament are concerned, this lack of military content in American examination of a problem which requires the closest attention to military factors is doubtless due in part to the sheer reluctance of military officers to give furtherance to efforts which they honestly believe can do no good and may be productive of deadly peril to their country. Indeed, an experienced American military officer called upon to provide professional advice to a disarmament commission is (under today's circumstances) in much the same quandary as an experienced physician who might be asked to make a preliminary diagnosis of a patient whose cure is thereafter to be attempted by occult incantations. In both cases the forthcoming advice is unlikely to be inspired by constructive enthusiasm for the project.

To be more specific, American military

officers today who are at or near the policy-making level are well aware of the implications of the Soviet arms program and quite capable of relating that program to established Communist objectives. "From the Soviet viewpoint," writes Lieutenant Colonel Howard L. Felchlin, "the United States remains their main enemy and principal threat to the achievement of international communism. Soviet security never will be a reality until the American way of life ceases to exist."¹

The history of Soviet postwar rearmament bears this statement out only too vividly. Soviet military policy has been designed with the United States in mind as the principal obstacle to Soviet ambitions—the obstacle which must be eliminated. Failure to evaluate this factor in relation to Western attitudes toward disarmament, or even to give it its due weight in the formulation—at the top level—of American military policy, has led us into a blind alley of uncertainty and frustration. The discernible facts of the Soviet arms program offer the strongest kind of corroboration for the facts about Soviet intentions which are to be deduced from existing knowledge of Communist doctrine. Yet to the Western public, and in large part, it appears, to Western statesmen as well, these facts are either unknown or undervalued as criteria.

The Soviet arms program has remained the X-factor in the formulation of Western judgments. This factor, when correctly evaluated, provides the key to the grim equation we seek to solve.

Modern Weapons in Soviet Strategy

The story begins immediately after V-J Day—a time when the Soviet leaders, undistracted by immediate warfare, were able to turn their attention to the future. The USSR was surrounded by vacuums of power. The German and Japanese threats

had been destroyed. France and China were in chaos. Nowhere on the Eurasian Continent was there an army or a tactical air force capable of offering any serious opposition to Soviet military expansion except the allied forces in Western Europe, and even they were undergoing rapid demobilization.

Overhanging this—for the Soviets—happy situation, however, was the grim shadow of the mushroom cloud. The United States had both atomic weapons and the means of delivering them to distant targets by long-range bombardment planes and naval aviation. The Soviet Union had none of these facilities. The Soviet air defense was a shambles, most of the Soviet air effort having been absorbed by tactical close-support aviation as the Luftwaffe's bombing threat withered.

Under these conditions a Soviet leader who meant to honor his signature to the Charter of the United Nations would have snapped at the United States offer to internationalize the production of atomic energy and abandon her monopoly of atomic weapons. Stalin refused that offer. He set to work to acquire atomic weapons capabilities and long-range delivery systems of his own, with the aid of captured German scientists and intensive espionage.

The significance of this decision hardly requires underlining. It was, as former President Truman has pointed out, the starting pistol for the nuclear arms race of today. There would have been no "balance of terror" had the Soviets agreed to the international control of nuclear production when this was technically achievable. The Soviets knew very well what they were doing. They created the "balance of terror"—by deliberate design for their own ends.

Equally significant was the Russians' choice of delivery systems for their atomic weapons. It is doubtful whether the Soviets ever seriously set out to match or surpass the United States in the produc-

¹Lieutenant Colonel Howard L. Felchlin, "The Theory and Practice of Communism," *Military Review*, June 1958, p. 33.

tion of heavy long-range bombers. The attractions of the ballistic rocket, both as a support for blackmail and as the instrument for the delivery of Lenin's "mortal blow" should the opportunity be judged ripe, proved irresistible to the Soviet leadership at an early stage of their postwar military planning. The intensive energy with which the Soviets pursued the development of ballistic surface-to-surface missiles is only now becoming known in detail from the accounts of German scientists whose usefulness for Soviet purposes is at an end and who have been returned to West Germany—presumably because what they had to tell could no longer be harmful, might indeed be helpful to Soviet interests.²

On the positive side, the ballistic missile seemed admirably adapted to the strategic requirements of Soviet geography, the Soviet political system, and Soviet military objectives. A landlocked nation with limited access to the sea has limited opportunities for establishing outlying bases needed for the operation and refueling of a large force of strategic aircraft. Such a nation, seeking to project its nuclear striking power outward from its own territory, needs delivery systems which do not require intermediate bases and can carry fuel for the full journey as well as the requisite amount of explosive violence.

A missile system can be tightly controlled. It is capable of dispensing violence without a distant deployment of personnel beyond the immediate control of the central authority. It is consistent with the Communist need for weapons which can be used by surprise, as a result of decisions taken and implemented in complete secrecy up to the moment of striking. The large-scale use of manned aircraft for such purposes cannot be effective without calling the coming shot by concentration of aircraft and supplies at the

bases from which the intended targets may be reached.

Thus the known existence of such a Soviet missile system is a greater contribution to the effect of the "balance of terror" on Western minds than would be a Soviet air force of equivalent or even of greater delivery capacity. Finally, Soviet studies of long-range rocketry had already, in the 1940's, made clear that long range is attainable only by degrees, by the process of trial and error. Beginning with the 200-mile German V-2, the Soviet scientists foresaw that they would have a 500-mile rocket before they would have one that could reach 1,000 miles with any degree of accuracy and reliability, and they would have the 1,000-mile rocket quite a while before they could hope to perfect a reliable missile of intercontinental range.

This characteristic of missile development also fitted the Soviet pattern for the future.

The ultimate purpose of the Soviet missile program was to regain freedom of action for Soviet expansion designs—primarily in Eurasia and in Africa, later on a global scale. The principal military restraint on this freedom of action was the atomic and long-range delivery capabilities of the United States, which the Soviet planners foresaw would be increasingly implemented by the growth of the American strategic bombing force. The pattern of Hitler's piecemeal advances, which culminated in the combination of resistance which destroyed him, was clear in their minds. They had no intention of endangering the "socialist motherland" by pushing the West into collective counter-violence before they were ready.

Western reaction to the coup in Czechoslovakia (which gave birth to NATO), to the Berlin blockade, to the guerrilla war in Greece, and the thrust at Korea was carefully evaluated in terms of Soviet military policy. As had been the case with the Spanish Civil War and the undeclared war with

² Robert Littell, "The Kremlin Picks a German Brain," *Reader's Digest*, August 1958.

Japan in East Asia, the experience gained in these affrays was made to serve a useful purpose. The war in Korea, for example, was the testing and training ground for the MiG interceptor squadrons which were the product of the First postwar Five-Year Plan and reconstituted the Soviet air defense on a respectable basis—an indispensable factor for Soviet freedom of action.

But it was clear that real freedom of action could never be attained as long as American means for massive nuclear retaliation and the will to employ it if challenged remained unimpaired. Here, too, the qualities of the ballistic missile had been thoughtfully evaluated—for this weapon has only one military use: surprise attack against fixed targets. By the end of the Korean war, the American pattern of overseas air bases was well-developed. The USSR was surrounded by a ring of these bases located in Western Europe, the British Isles, Turkey, North Africa, and Japan. They brought the medium-range B-47 aircraft, then and now the "workhorse" of the Strategic Air Command, within reach of Soviet targets. They provided refueling facilities for the larger B-52 planes which still require one in-flight refueling for intercontinental missions.

The developing Soviet ballistic missile program was clearly going to provide a capability of striking the overseas bases of the Strategic Air Command by means of intermediate range (700 to 1,500 miles) ballistic missiles (IRBM's) well before the USSR would have a reliable intercontinental missile in sufficient numbers to threaten the SAC bases in North America. Hence the first stage of the Soviet program, as far as its military ingredient was concerned, lay in the disruption of the US overseas airbase system by the effect of the Soviet IRBM capability upon the host countries, causing them to regard the presence of US airbases as a threat

rather than a contribution to their security. The decisive moment, however, lay in the future, when sufficient intercontinental ballistic missile (ICBM) capability had been acquired to exploit the threat of a simultaneous missile assault on all the SAC bases at home and abroad.

This did not mean, of course, that the Soviets were, or are, hinging their technological program on a single capability factor. The Soviets know as well as we that the technological battleground is a huge and complicated chessboard on which the intended moves of the day-after-tomorrow may be obviated by the enemy's move of tomorrow. In the complex game of technology, long-range advantages may be projected, but cannot be taken for granted. As the potential aggressor who can call, albeit approximately, the time and nature of his attack, the Soviet Union may, indeed, enjoy a greater freedom of choice among weapons. But the logic of the technological race and the necessities of defense dictate that this choice not be an exclusive one. Thus for example, manned aircraft will continue to fill an important function in Soviet as well as Western strategy, even as intercontinental missiles become available in operational quantities.

But modern weapons systems, more than implements of strategy, are factors also in the war of nerves. The decision appears to have been reached by the Kremlin late in 1957 that the time had come to start cashing in on the psychological effects of Soviet missile advances—which, in any case, could not be kept under wraps much longer as the necessary testing of the long-range missiles cannot be concealed.

The launching of the *Sputniks* symbolized a Soviet belief that the first step in the coming disarmament of the West by missile threat or missile violence had been taken and that the United States could not overtake the Soviet lead in time to prevent the further planned steps toward

the Soviet objective. During the post-*Sputnik* months, there has arisen some reason to think that this belief may have been premature, that political considerations may have overruled military judgment. (This may help to explain the disappearance of Marshal Zhukov who is better able to evaluate Western capabilities than most of the Soviet marshals.)

The Soviets have, indeed, increased their pressures of various kinds against the West, notably by increased boldness in the Middle East. Yet there may well be some kernels of doubt beginning to sprout in the dark forcing-beds where Soviet top-level policy is produced. Certainly, the Soviet leadership has given hostages to fortune in order to create their missile program; they have opened, from necessity, the gates of knowledge to a wide spectrum of scientific, military, and technological personnel without which the missile program could never have become reality. That they did this without realizing the ultimate dangers inherent in such a course is not to be credited. The conclusion is, therefore, inescapable that the leaders who took this risk with open eyes believed they could discount it by eventual and inevitable triumph over their external enemies—of which the United States is the chief—before the internal consequences caught up with them. After that they would be safe, the sole possessors of a power emblazoned in the glory of global victory.

Disarmament or Counterweights?

To upset this sinister timetable now becomes the cynosure of Western hopes—not only of eventual escape from the stresses of the "balance of terror," but perhaps of the survival of human liberties on the surface of this planet. It should be clear from the very nature of the Soviets' arms program itself that they are not going to be persuaded to give it up, or neutralize its advantages, by any agreement for the limitation of armaments as long

as they continue to anticipate gaining their ultimate planned position of decisive superiority.

Yet there are flaws in their missile harness through which well-directed arrows may ultimately penetrate. Of these the most promising is their lack of understanding of the qualities inherent in strategic mobility—as distinguished from the mere ability to throw weapons to great distances. The Soviet missile program is a blend of Communist political strategy and traditional Russian military thought habits. It is a land-based program intended for the destruction of land-based targets—the fixed bases of the Strategic Air Command and such missile bases as we may hereafter seek to build.

The Soviets may well be correct in their belief that we could not build additional bases of either kind as rapidly as they can now build missiles to destroy them, and that since we, like themselves, will have intermediate range missiles before we have intercontinental missiles in any number, we shall encounter insuperable and disruptive political difficulties in trying to emplace our IRBM's—"hard-sited" or otherwise—in the bosoms of our allies, from which sites alone they can reach Soviet targets. The inexorable calculations of "lead-time" are against us—calculations of which our nervous friends on the Soviet doorstep are painfully aware.

There is another weapons area, however, in which the calculations of lead-time are in our favor. It is no longer necessary for nuclear aircraft or missiles to be operated from fixed bases. They can be operated from mobile floating bases at sea, and given intercontinental range by moving the base within reach of the target. The Soviets have inherited the Russian tradition of incapacity in sea warfare. Their postwar naval building program of gun-armed cruisers and destroyers and of conventionally powered submarines is already on the verge of obsolescence. These and

the shore-based medium-range aircraft of their Naval Air Force are their only means of contesting the command of the sea, and they are wholly insufficient to deal with the fast carrier task forces and nuclear-powered submarines available to the United States Navy or with our swiftly progressing antisubmarine warfare techniques.

It seems likely that the recent replacement of Admiral Kuznetsov (the protagonist of the cruiser-destroyer program) by Admiral Gortchikov as the head of the Soviet naval establishment was prompted by belated recognition that gun-armed warships have small hope of survival in the same ocean with aircraft carriers. At any rate, further cruiser construction has been suspended, and so, reportedly, has been the expansion of the conventionally powered submarine program. No doubt the Soviet Navy is now putting every effort into the development of nuclear-powered submarines, but here they are very late-comers in a race in which we have a long lead.

It is in the more intensive development of sea-based mobile striking power that we may find a counterweight to readjust the "balance of terror"—not only to deny the Soviet leaders their hoped-for decisive advantage but to gain such an advantage for ourselves. That advantage would be based on the pivotal fact that the ballistic missile, to which the Soviets are now so heavily committed, is designed to attack fixed targets—must, indeed, be preset to follow a ballistic course from a known starting point to a known destination.

The ballistic missile is useless for attack against moving targets.

It is, of course, true that ships or submarines operating nuclear weapons can be attacked by other submarines, or by shore-based aircraft. But in such attacks the Soviets cannot count on surprise annihilation; the attack and defense of naval units at sea is a matter of the chances of

war with almost no chance of effecting the destruction of the targets before they have launched their nuclear strikes deep into the Soviet heartland. This is not the safe and sure method recommended by Lenin and inherent in the Soviet policy of assuring the safety of the Socialist motherland before all else. The risk of retaliation from fixed bases taken under surprise missile fire may be calculable and estimated as acceptable. The risk of retaliation from mobile bases cannot be discounted at all.

The needed counterweight in the "balance of terror" could be provided by the steady expansion of our mobile sea-based strike capabilities. Such an expansion is technically possible by a fully feasible readjustment of existing priorities in the production of weapons systems already past the experimental stage—carrier-based aircraft, the *Regulus II* supersonic atmospheric missile (which can be fired with great rapidity from the steam catapults of carriers), and the submarine-based *Polaris* intermediate range ballistic missile. This adds up to a mounting accumulation of sea-based striking power which would provide immediate reinforcement to our Strategic Air Command and might provide us ultimately with the strategic edge.

The obsolescence of the existing Soviet naval establishment plus the geographical limitations of Soviet access to the sea (far more restrictive than the German handicap in this respect which was a chief factor in the failure of the U-boat campaigns in both World Wars) deny to the Soviets any real capability of serious interference with American control of the sea's surface, of the airspace above that surface, and of the depths below it. Thus approximately 70 percent of the surface of the earth, and the corresponding airspace, becomes a deployment and operational area for American striking power and can be substantially denied to the Soviets. Once implemented, no Communist government could consider accepting such a handicap

as being other than criminally adventurous.³

It must be emphasized again that this is not an argument for exclusive reliance upon sea-based striking power. Every weapon system, even the strongest, has weaknesses and vulnerabilities. The advantages of water-launched vehicles in protection against surprise attack are prodigious, but not absolute. The submarine-launched missile is an ideal weapon in terms of maximum concealment and rapid initiation of fire; yet the accuracy of such missiles may not be easy to achieve, which may mean that more missiles must be fired.

The defense of the United States in the foreseeable future indeed must rest on balanced forces and the use of all available weapons systems using fixed and mobile bases. But, within such a balance, increased attention to sea-based striking power could give the United States an increasing and potentially decisive advantage in the technological race.

Such an American advantage, like all advantages gained by exploiting a technological lead in weapons building, would, of course, be temporary. The Soviets know this; they do not expect to gain more than a temporary advantage from their ballistic missile lead, but they undoubtedly mean so to employ that advantage, when they attain it, as to make it permanent. We shall certainly not be able to stay their course by persuading them of the manifold blessings of arms limitation, which to the Communist mind are not blessings at all but obstacles to the attainment of the Communist objective of a monopoly of global power. But we may well be able to give them pause by confronting them with an unchallengeable military risk.

Certainly under the shield of a sea-based

deterrent force which endangers no populated areas—ours or those of our friends—by its presence, allied confidence might well recover and the existing prospects of economic and political unity in Western Europe might develop, within the NATO framework, a crystallization of defensive power as well which would command resources not inferior in many respects to those enjoyed by the USSR. Nuclear assault being minimized by the prohibitive risk of retaliation from relatively invulnerable sea bases, the opportunities thus afforded for vigorous Free World activity in the satellite zone might well prove worthy of exploitation.

Further, the development, by the United States and her allies, of a sea-based deterrent carries with it the necessity for maritime freedom of action on a global basis in order to assure the required deployment of the deterrent forces under changing conditions. Worldwide freedom of action thus established under the spur of necessity brings with it dividends in the shape of increased capability for swift and effective use of all forms of mobile power in dealing with localized emergencies.

The futility of disarmament by persuasion is made clear by examining the character and deducing therefrom the objectives of the Soviet missile program. From the same reasoning, we may foresee the results of opposing that program with unchallengeable counterforce based on the principle of mobility. If we hope eventually for limitation of armaments by agreement, either with the Soviet Government as at present constituted or with a successor brought to power in Russia by the interaction of pressures incident to the disappointment of current Communist expectations, we can usefully negotiate only from a position in which military advantage is clearly with us and our associates. Without such advantage we shall indeed never be in position to negotiate usefully at all on this subject.

³ For an extended discussion of the capabilities of sea-based nuclear weapons systems in the context of American strategic needs, see George Fielding Eliot, *Victory Without War, 1958-1961*, United States Naval Institute, Annapolis, Md., 1958.

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BOOKS OF INTEREST TO THE MILITARY READER

GENERALS AS STATESMEN. By Josef Egmond Gellermann. 150 Pages. Vantage Press, Inc., New York. \$2.95.

By Lt COL C. S. FREED, *Armor*

Generals as Statesmen purports to answer the question, "Can a distinguished general become a successful statesman?" Unfortunately, the untimely death of the author prevented the completion of this analysis. The original intent of the author was to present a chapter analyzing the elements of statesmanship, one setting forth the elements of generalship, and a series of 19 individual personality sketches of leading military figures who have also been prominent in the political realm. Only the chapter on generalship and nine of the personality sketches were completed. Each sketch contains conclusions concerning the relative success of the principal as a statesman.

The volume is well-written in an interesting and readable style and presents many little-known anecdotes in the lives of great men. The informed reader may not always agree with the conclusions reached by the author, but he will find the account on which they are premised to be stimulating and thought-provoking.

As an unfinished work there are no comprehensive conclusions drawn on the overall merits of the military leader as a statesman. A theme running throughout implies that military training and military leadership do not develop statesmanship. Had the author completed the work and included examples of other, more suc-

cessful military statesmen, he might well have recognized that the number of military leaders that has risen to direct the affairs of nations has been more than mere coincidence.

THE CHEMICAL WARFARE SERVICE: ORGANIZING FOR WAR. United States Army in World War II. By Leo P. Brophy and George J. B. Fisher. 498 Pages. Superintendent of Documents, US Government Printing Office, Washington, D. C. \$4.00.

This volume, one of the series *United States Army in World War II*, is the first to be published in the group of three Chemical Corps volumes in the subseries *The Technical Services*. It traces the organization and administration of the chemical warfare service from its origin in World War I through World War II.

The Chemical Warfare Service, redesignated the Chemical Corps after World War II, felt the pinch of manpower and fund restrictions between the two World Wars even more severely than other services, partially because of efforts to outlaw gas warfare and partially because of antipathy growing out of the horror stories of World War I.

The book covers the problems incurred during this period, both as a result of these restrictions and as a result of the training requirement generated by World War II. It is particularly valuable to the professional in the chemical warfare or related fields and is an accurate historical record of value to researchers and writers.

THE GREAT DETERRENT. By Sir John Slessor, Marshal of the Royal Air Force. 322 Pages. Frederick A. Praeger, Inc., New York. \$6.00.

By MAJ CHARLES M. SIMPSON, III, *Inf*

The Free World's most persistent advocate of "successful deterrents operated from a foundation of calm and tireless vigilance" is a retired marshal of the RAF, Sir John Slessor. Since World War II his voice and pen repeatedly have urged a policy of primary reliance on the thermonuclear weapon as the vital foundation of the West's defense against Communist aggression.

Over the years he has made a profound impression on the national policies of Great Britain and the United States through the medium of his closely reasoned explanations of the application of policy based on the strategy of the big bomb. This book is a collection of his lectures, articles, and broadcasts on strategy—primarily the strategy of airpower.

The book confirms a fact known to Western military men for years—the author is a forerunner who has accurately anticipated the primacy of airpower since before the nuclear age. To appreciate the extent of his prophecies fully, it is necessary to compare them with the date of their delivery for he has been putting forth concepts for years that are our modern policies and doctrines.

It is interesting to note that the author, although a life-long protagonist of airpower, repeatedly states that airpower is not a panacea for all military situations. Indeed, he says that airpower cannot win a great war unaided.

He emphasizes (from a lecture delivered in 1954) that there is a need for a conventional fire brigade to meet the Communist tactics of creating limited emergencies. He points out to American military men that it is ironic that the United States should follow British leader-

ship in the adoption of a national policy of the massive deterrent, yet ignore the basic premise on which such a policy rests. Massive retaliatory power is a reinforcement for conventional military means, not a replacement for them.

Army officers would profit by a close reading of the wise words found in this book. As General Gruenther states in his brief introduction to this volume, "His philosophy is entitled to most careful consideration by a very wide audience." It is easy to agree with this conclusion.

THE IMPERIAL IDEA AND ITS ENEMIES. By A. P. Thornton. 370 Pages. St. Martin's Press, Inc., New York. \$7.50.

By MAJ RICHARD L. WEST, *CE*

Throughout the 19th and early 20th centuries, Britain wore the cloak of imperialism proudly and well. A dedicated sense of world service and an almost religious faith in the destiny of the "Empire" was strong in the hearts of most Englishmen. However, belief in the benefits of empire was not shared by all. There was an outspoken minority within England which challenged the value of the imperialistic policy on both a moral and economic basis; and the governed frequently did not want or appreciate the "benefits" of British control.

In his book, Thornton has not attempted to present a chronological account of the times, but talks about the many people, ideas, and political and economic pressures that helped mold British imperialism in concept and practice.

If you are a student of British history and familiar with the events and personalities involved, this book will help fill voids by giving a fuller appreciation of the feelings and emotions of the times.

PAKISTAN AND THE REGIONAL PACTS. By Mohammed Ahsen Chaudhri. 144 Pages. Institute of Pacific Relations, New York. \$2.00.

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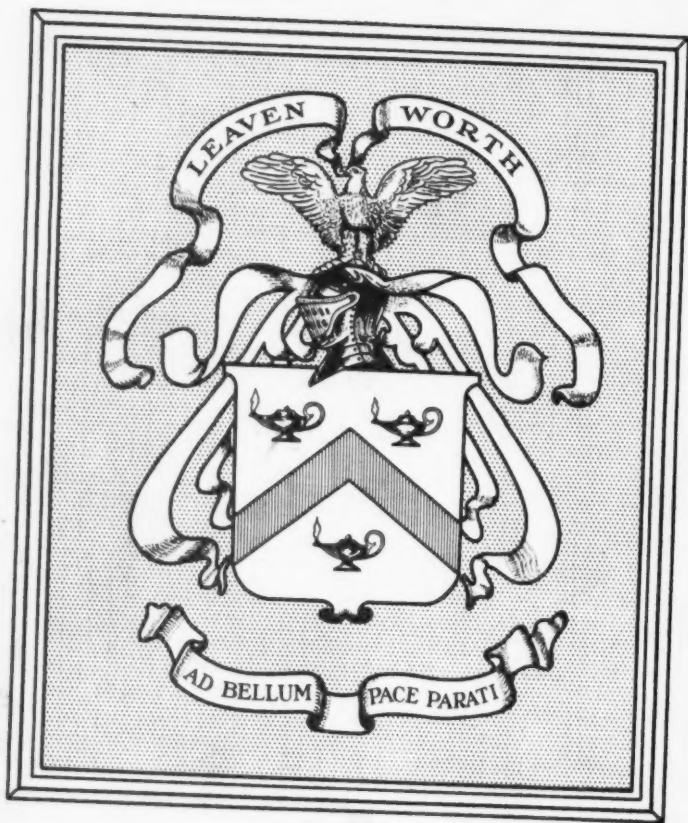
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